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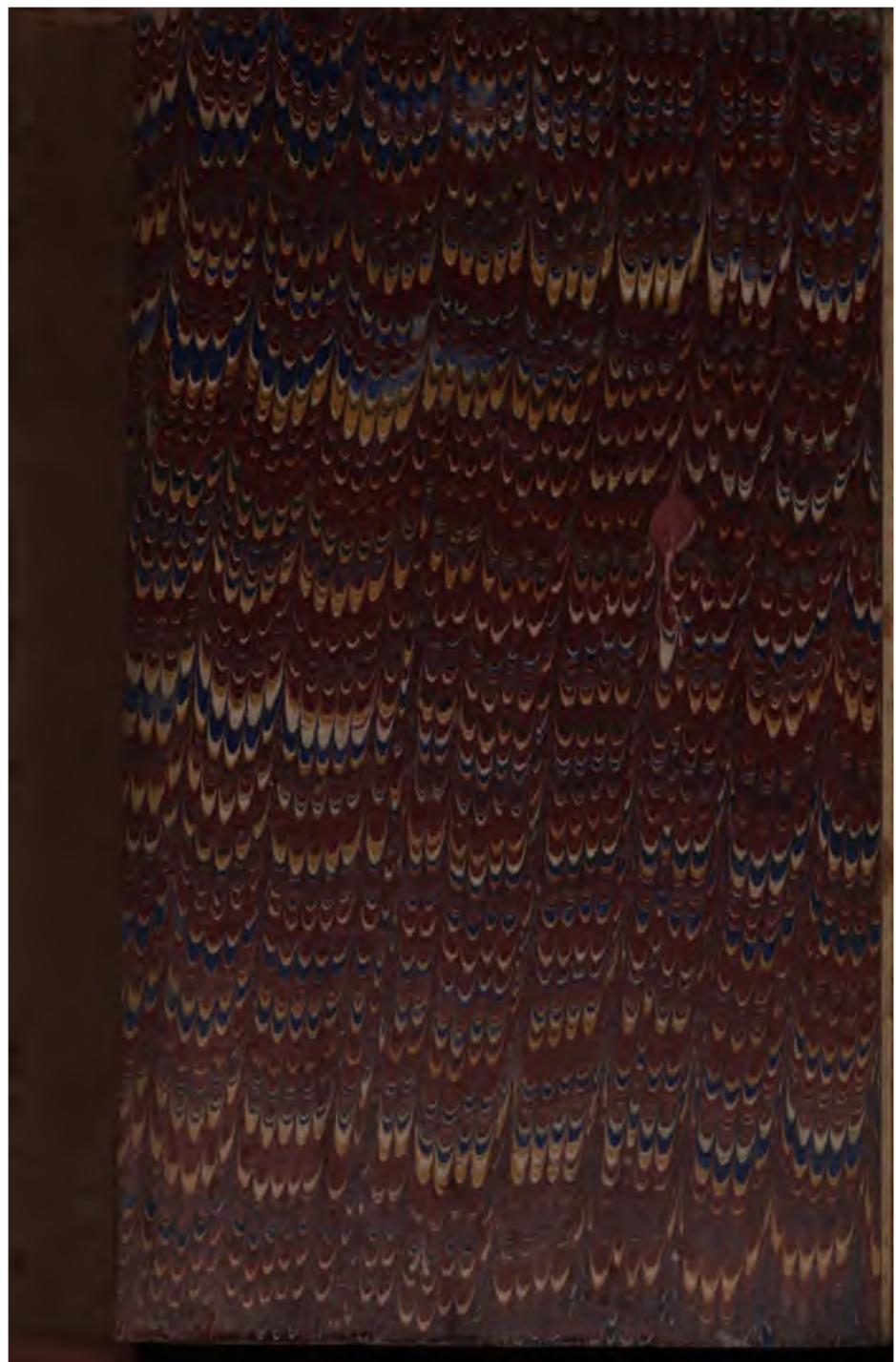
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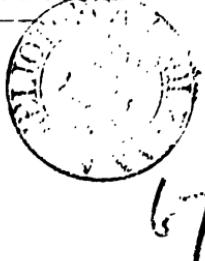
Specifications

RELATING TO

SADDLERY, HARNESS, STABLE
FITTINGS, &c.

A.D. 1625-1866.

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P R E F A C E.

THE Indexes to Patents are now so numerous and costly, as to render their purchase inconvenient to a large number of inventors and others, to whom they have become indispensable.

To obviate this difficulty, short abstracts or abridgments of the Specifications of Patents under each head of Invention have been prepared for publication separately, and so arranged as to form at once a Chronological, Alphabetical, Subject-matter, and Reference Index to the class to which they relate. As these publications do not supersede the necessity for consulting the Specifications, the prices at which the latter are sold have been added.

The number of Specifications at this time printed and published amounts to nearly 62,000. A large proportion of the Specifications enrolled under the old law, previous to 1852, embrace several distinct Inventions, and many of those filed under the new law of 1852 indicate various applications of the single Invention to which the Patent is limited. Considering, therefore, the large number of Inventions and applications of Inventions to be separately dealt with, it cannot be doubted that several properly belonging to the group which forms the subject of this volume have been overlooked. In the progress of the whole work such omissions will, from time to time, become apparent, and be supplied in second or supplemental editions.

SAD.

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PREFACE.

The Abridgments contained in this volume relate, 1, to saddlery, comprising saddles and saddle-trees, pillions, pack-saddles, saddle-cloths, housings, gambadoes, girths, stirrups, stirrup-bars, stirrup-leathers, bridles, bits, rings, buckles, hooks, knee-caps, muzzles, and horse boots; 2, to carriage and cart harness, including collars, hames, saddles, territs, buckles and their substitutes, traces, tugs, bits, head-gear, reins, and nose-bags; 3, to whips and spurs; 4, to stable fittings, namely partitions, hay racks, mangers, troughs, harness-brackets, and halters and apparatus for securing animals; 5, to stable utensils, including currycombs, brushes, and singeing lamps; and, 6, to contrivances for stopping runaway horses, and for instantaneously releasing horses from carriages in case of accident, when such contrivances form part of the harness.

This series does not embrace the inventions for preparing skins and tanning leather for harness, nor machines for sewing harness. These will be found in the series of Abridgments entitled "Skins, Hides, and Leather," and "Sewing and Embroidering."

The Abridgments marked thus (**) in the following pages were prepared for another series or class, and have been transferred therefrom to this volume.

B. WOODCROFT.

May, 1868.

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INTRODUCTION.

THE earliest employment of the horse in man's service was to draw the chariot in war and in processions ; for this purpose two were originally used, and no example is found of Egyptian chariots with more than two, or of any chariot drawn by one horse. In all instances the harness is very similar ; there may be seen a pad or saddle ornamented with a knob on the top of it and furnished with a breast strap and girth, a headstall with frontal, cheek-straps, and noseband, a bit with cheek-pieces, a bearing rein fastened to a hook on the front of the saddle, and driving reins passing from the bit through a ring on the yoke or saddle. The horses are harnessed to a yoke and to each other by straps. The pole is fitted into a cavity in the middle of the yoke, and the parts are firmly connected by a pin passed through both and by thongs. Blinkers are not generally found, but in some sculptures something may be seen projecting above and at the side of the eyes, which may be intended for them. The whip consists of a wooden handle and a single or double thong ; a loop at the lower end of the handle enables the warrior to use his bow while the whip hangs suspended from his wrist ; the driving reins are often tied round his body. In the Assyrian sculptures there is very frequently a third horse abreast of the others on the right side ; it is joined by an inner trace to the rim of the chariot, and its bearing or driving rein is tied to the front thereof. The Lydians, we are told, used two or even three poles and a horse between each. The horses are always abreast, never harnessed like the modern tandem or four-in-hand. The triumphal car had not ordinarily a pole ; the horses were led by men stationed at their heads. In the triumph of Augustus, after the battle of Actium, two of his younger relations rode, one on each outside horse. It need scarcely be mentioned that the different parts of the harness were profusely ornamented ; sometimes plumes were placed on the top of the headstall ; sometimes bits were made of

gold or silver, and cheek-pieces were embossed or inlaid with ivory or set with jewels; occasionally fancy ornaments and housings were added. The yoke also was decorated with precious materials, carving, plumes, and figures.

The order of harnessing is thus described by Homer:—The saddle, breast-strap, and girth were first put on; then the head-stall and bit; then the yoke was laid on the saddles and fastened thereto by straps. The horses thus harnessed were led to the chariot, and the yoke and the pole were united by passing the pin through the holes or rings and by tying them together three-fold on each side. Sometimes the yoke and pole were fastened together before attaching the horses to the yoke.

Oxen, asses, and mules were harnessed to carts or ploughs solely by a yoke; this was either a flat plank or pole with two wooden bars descending from each end, or formed at each end with a curve. The bars or curve rested on the animal's withers, and were connected at the lower ends by a band which passed under the throat. Sometimes, when oxen were employed, the draught, instead of being from the shoulders, was from the head, the yoke (a simple plank or pole) being tied to the base of the horns. Usually the yoke was fastened to the pole by a leathern band lashed backwards and forwards over projections thereon; but sometimes the fastening was much more complicated, as in the case of the Gordian knot, which tied the yoke of a common cart, and consisted only of flexible twigs or bark; the ends of these were so concealed by being inserted within the knot that the only way of untying it was that which Alexander adopted. Horses, asses, and mules carried on their backs panniers and pack-saddles. There is no authority for asserting how the Romans harnessed the single horse to the *cisium* or gig, or the pair of horses to the *essendum* or *covinus* (a carriage usually covered), except that the *cisium* had shafts fastened to the saddle or collar.

When the horse was first used for riding is uncertain. In Genesis, c. 49, we read, "Dan shall be a serpent by the way, an " adder in the path, that biteth the horse's heels, so that his rider " shall fall backward" (the date usually assigned to this passage is B.C. 1689). In Job, c. 39, the ostrich "scorneth the horse " and his rider" (B.C. 1520). In Exodus, c. 14, the Egyptians pursued the Israelites with horses and chariots and horsemen; the root of the Hebrew word translated horseman, says Mr. Kenrick,

signifies *divide*, proving that it means a man *astride on a horse*. In Exodus, c. 15, the word *rider* is elsewhere translated *driver* (the date of the exodus of the Israelites is B.C. 1491). In 2 Chronicles, c. 12, Shishak came up against Jerusalem with 1,200 chariots and three score thousand horsemen (B.C. 975). Mounted cavalry do not appear in sculptures of any great antiquity among the Egyptian forces; but in one copied by Champéllion there is a warrior with a quiver at his back and mounted on a bare-backed horse at full gallop; he holds the bridle in his left hand and a rod in his right. Dr. Birch, of the British Museum, assigns to this sculpture the age of about B.C. 1400, and thinks that the scene represents a mêlée, and that the horseman is fleeing. There is not any mention of mounted cavalry in the Iliad or Odyssey; the Greek word equivalent to our word horsemen or cavalry must be understood to mean chariot men. There were, however, expert riders in Homer's time, for he compares Ajax to a man mounted on four horses and leaping from one to another at full gallop. In the Odyssey, too, Ulysses in a shipwreck strides a plank like a rider (the earliest date assigned to Homer is B.C. 1184).

The primitive mode of guiding a horse was by passing a rope through the mouth and round the lower jaw; then succeeded the bit, headstall, and bridle, with the addition of a leading rein attached either to the back of the noseband or to a ring. The earliest mention of a double bridle and bit is in Xenophon's work on horsemanship; he recommends the rider, if he wishes to show off his horse and make it lift its head, to use a double bridle and bit rather than the whip and prickle. One bit was a smooth, flexible, ring-snaffle; the other was armed with sharp points called in Greek hedge-hogs, in Latin wolf's-teeth. The horses of the Numidians were so docile that they were guided by merely the touch of a rod; some followed their masters like dogs. The horse was ridden either bare-backed or furnished with a horse cloth. It is generally asserted that saddles were not used until the fourth century of our era, but Ginzrot, a learned German who has compiled a valuable and exhaustive work on carriages and harness, is of opinion that the word *ephippium* denoted not a mere horse cloth, a skin, or a flexible covering, but a saddletree or frame of wood, which after being stuffed was covered with softer materials. Beckmann, who wrote a work on inventions, thinks that the Persians invented *saddles*. Xenophon in the Cyropædia writes that

the Persians were once the most skilful riders, but that now they put more clothing on their horses than on their beds, caring for an *easy* rather than a *good* seat on horseback. However there is no classical Greek word which corresponds to our modern *saddle*; the Latin word *sella*, which is its exact equivalent, is not found in the sense of *saddle* until nearly the close of the fourth century, when Vegetius wrote that Persia produces the best horses *ad usum sellae* (for saddle use), and when Theodosius enacted that the *sella cum frenis* (saddle and bridle) to be put on a hired horse must not weigh more than 60 pounds. The venerable Bede writes that the English began to use saddle horses about A.D. 631.

The Greeks and Romans were taught to vault on to their horses on either side; there were wooden horses for this exercise in the Campus Martius. C. Gracchus, so Plutarch writes, set up in many public places, especially on highways, stones that persons might thus easily mount their horses without assistance. Xenophon's directions for mounting are, in the left hand hold the leading rein very loosely, a portion of the mane near the ears, and the spear; in the right hand take the reins and a portion of the mane near the withers; take a spring either from the left hand or from the spear and vault on to the horse's back, taking care that the knee does not touch the backbone. Practise mounting from the right side also, in case that the horse is being led with the left hand and that the spear is in the right hand. Elsewhere he writes that it is well for the groom to know how to help his master, if he be in ill health or old, to mount in the Persian fashion, namely, to kneel down and bend his back that his master may step thereon. Some nations taught their horses to kneel down when about to be mounted; Xenophon alludes to this custom; he does not disapprove of it, but advises the rider not to trust to it, as the horse may not always be obedient at the required moment. Sometimes there was on the spear a projection or loop for the rider's foot to rest on while mounting; sometimes there was a metal or wooden knob on each side of the ephippium. It appears strange that so necessary an appendage as stirrups should have been so long unknown. Hippocrates (B.C. 460-357) writes that the Scythians, who were much on horseback, were troubled with swellings in their legs occasioned by their dependent posture and the want of something to sustain their feet. Galen (A.D. 130-201) makes the same observation of the Roman cavalry. There is no classical word in Greek or Latin for stirrup. The first

certain account of stirrups is in a book written by Mauritius (A.D. 582-620); he says that a horseman must have at his saddle two iron *scale*. Suidas, who is supposed to have compiled his lexicon in the seventh century, gives *scala* as an equivalent to the Greek word *ἀράβολες* (one who helps to mount). On a piece of tapestry (assigned to the 11th century), which Montfaucon caused to be engraved, all the saddles have stirrups. Eustathius, who lived during the latter half of the 12th century, tells us that stirrups were not common in his time.

Nothing certain can be said respecting the invention of spurs; they are seldom, if ever, seen on antique statues. Xenophon (B.C. 440-357) uses a word *μέωψ* which is often translated *spur*; its original meaning is *gad-fly*; then *a prickle, a prod* (which was inserted into the handle of a whip). He always uses the word in the singular; he writes, when the horse is learning to leap, strike him *τῷ μέωψι*; if he had meant *with the spur*, would he not have used the plural instead of the singular? Julius Pollux (A.D. 183) informs us in his Onomasticon that Pherecrates (B.C. 436), of whose writings only a few fragments remain, employs the word *δυκερρόβας*, and that horsemen fastened them round their heels; this information would be valuable if the fragment could be found in which the word is said to occur. In the characters of Theophrastus (B.C. 336) a vain fellow is represented as walking into the agora *in his spurs*, but the words in italics are spurious. Spurs were in early use among the Romans, as may be proved by reference to Plautus (died B.C. 184) and other Latin poets and authors.

In ancient times the horse was kept chiefly in a stable. In Ginzrot's work is an engraving of an ancient stable, in which are a round ornamented manger projecting from an end wall or partition and a pole down the middle of the stable supported by an ascending rope. Suspended from a side wall are several articles; among them may be distinguished a currycomb, a brush, a scraper, a mane-comb, a pitchfork, a rake, a sieve, and a shovel. The headstall is very like the one in use at the present time, and the horse is secured by a rope which passes upwards from a ring on the top of the headstall, over two pulleys fixed in a beam, and hangs down behind the end wall. In another engraving a chain passes from the noseband over a pulley fixed behind the wall at the back of the manger; both rope and chain are kept taut by a

weight at the end. The horse wears a horse cloth fastened round its chest by a button or buckle and kept on by a broad roller. A strap or band passes round the rump and keeps the cloth in its place. In one corner of the cloth is an A, either worked or sewn on. Xenophon recommends that the stable should be so situated that the owner may get sight of his horse and see that its food is not stolen or wasted, and that the flooring should not be damp or smooth, but sloping and paved with stones about as large as a hoof. He adds that the horse should be led into an outer shed to be groomed; that the shed should be bestrewed with four or five cartloads of round stones weighing each about a pound, so that the feet may be accustomed to travel over such surfaces and be strengthened thereby; that during the process of grooming a muzzle should be put on the horse; that the groom should begin at the head and mane and then proceed to the body, currying the hair the wrong way; that the back and legs should be hand-rubbed only; that too much grooming should not be applied to the belly and under parts, and that the head, mane, and tail should be washed.

From the foregoing remarks it will be found that moderns have invented but few parts of harness and saddlery. They have, however, very materially improved on the ancients, as will be seen by referring to the many ingenious inventions abridged in this series. Ancient harness and saddlery were simple, but clumsy and heavy; the moderns excel in making every part exceedingly neat, and as light as is consistent with safety. The yoke has given way to the curriole bar, its forks to the collar, and the fastening of the yoke and pole and of the shafts and saddle to pole chains and tugs. Traces (perhaps), breechings, kicking straps, and martingals are modern. Many Patents have been taken out for stopping runaway horses and for releasing horses from the carriage in case of accident; there is no record of any such contrivance being used by the ancients. Either they considered such incidents too trifling to be mentioned, or they had their horses more under control. There is no doubt that they took very great pains to educate and break in their horses. We read of some nations who drove and rode without bit, rein, or bridle; they guided, urged on, and stopped their horses by the voice or hand, or by the touch of a rod. The fame of the early Britons for chariot driving must not be forgotten; they excited the astonishment of Julius Cæsar and his legions, and he has recorded their

daring and dexterity. A few words will not be out of place respecting the methods of journeying from place to place adopted by the ladies in early times. In the East the camel and the ass were the customary animals employed for the purpose. In Gen., c. 34, "Rebekah arose, and her damsels, and they rode upon the camels;" and again, "When she saw Isaac, she lighted off the camel." In 1 Samuel, c. 25, when Abigail went to meet David, "she rode on the ass." See also Judges, cc. 1 and 19; 2 Kings, c. 4, &c. All authors who have written of the Amazons, whether or not they believed them to be a distinct nation, agree that they trained their daughters in riding on horseback. In the British Museum an Amazon is represented astride on a horse, in a frieze from the temple of Apollo at Phigalia (date about B.C. 400). Virgil describes Queen Dido's hunter and its trappings—a proof that ladies rode on horseback in his time. The Grecian dames had their *harmamaza*, the Roman dames their *carpentum* to ride in; each was a covered or partially covered carriage. The English ladies rode astride like men until the reign of Richard the Second, when his queen, Anne of Bohemia, introduced side saddles into this country (about A.D. 1380); but side saddles had been used a century or two before in other countries, if we may believe Nicetas, one of the Byzantine writers. For the next 200 years the English lady journeyed either on her palfrey caparisoned with side saddle and housing, or on a pillion behind the rider, or in a horse litter or waggon. In the reign of Elizabeth, Lord Arundel added to her comfort by the introduction of a coach. In a work published by Berjeau, and consisting principally of engravings of chariots drawn by horses, and of horses and their riders (from the earliest times to A.D. 1540), all the ladies are mounted on the off side, whether riding on a side saddle or on a pillion.

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A.D. 1625, January 7.—N° 31.

KNAPPE, EDWARD.—Improved construction in carriages and harness. The carriages are improved in construction by making the axletrees of iron, brass, or steel, either of one length fixed to the one wheel and boxed in the other, or of two lengths fixed severally in either wheel and boxed under the body of the carriage; by so placing and contriving the wheels and axletrees that in an instant the wheels may be shut closer together or be set wider; by an invention whereby the driver can, without leaving his seat, keep the hind wheels from turning when the carriage is going downhill; and by hanging the body of the carriage on four springs, two before and two behind. The improvement in harness consists in making collars of plate of iron or steel, and in “raysiainge the harnes higher then in the ordinarie course of “drivinge.” The patentee does not set forth the details of the above improvements.

[No Specification enrolled. Letters Patent. Printed, 4d.]

A.D. 1693, January 31.—N° 313.

REEPE, JOHN, junior.—“A certaine engine or machine for the “makeing or twisting of whipps, in which said engine much “firmer, more regular, and better worke is made then is or can “be made any other way now vsed, which machine has not been “heretofore knowne or practised by any of our subiects.”

[No Specification enrolled. Letters Patent. Printed, 4d.]

A.D. 1727, June 8.—N° 494.

NEWSHAM, RICHARD.—A new sort of stirrup leathers, stirrups, and housings. The only information given by the patentee
SAD.

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respecting his inventions is, that the stirrup leathers being made “ compleatly stiff ” will secure the rider from falling in leaping, hunting, or racing, and when the horse starts aside ; that “ it is “ impossible to dismount a man (though engaged in battle) when “ his feet are in these stirrup, yet no sort can be more easy for the “ feet quitting the stirrup than these are ; ” and that the housings “ are so contrived that they will rather cool the horses than heat “ them.”

[No Specification enrolled. Letters Patent. Printed, 4*d.*]

A.D. 1740, August 9.—N^o 572.

CRISPE, WILLIAM.—Two-wheel carriages and harness. “ The “ carriage,” says the patentee, “ moves with two wheels fixed “ either on a wooden or double stapled iron axletree, double “ shafts of wood are fixed on the carriage so as to move horizon- “ tally, within each of which shafts one of the horses is placed, “ and each of the said shafts is confined by a bar to keep them “ at a proper distance from each other, and between the horses a “ pole is fixed on the carriage about four inches above the shafts. “ The harness for each horse is of the same make as is commonly “ made use of for a single horse drawing a chaise, with the addi- “ tion only of a pole piece, a back band, and belly band, for “ each horse, heretofore not in use for a two-horse chaise.”

[Printed, 4*d.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 156.]

A.D. 1748, November 18.—N^o 638.

WALFORD, THOMAS.—“ An engine or machine for the laying “ or intermixing of threads, cords, or thongs of different kinds, “ commonly called plattting.” No details are given in the Speci- fication, but at the head of the drawing are these words :—“ The “ number of different forms the plating engine might be made in “ according to y^e different kinde of goods that might be made “ by it, would be endless, but the principall parts are as followes.” These parts are four, namely, platters, extenders or shifters, “ the “ form and proportion of either may be varied at pleasure,” a sliver, and apertures, “ for y^e chains of ye work to fall in y^e sliver “ wth moves y^e whole.”

[Printed, 6*d.* Drawing. See Rolls Chapel Reports, 6th Report, p. 128.]

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A.D. 1749, June 29.—N^o 645.

PALMER, SAMUEL.—A new kind of bit. The patentee describes five sorts of bits, the military, the pistol or road, the hunting, the cross, and the lever or common horse bit. The parts common to the first four are branches attached to the ends of the mouth-piece; to these branches are fastened staples for snaffle, bradoon, curb, and caviston reins, and for headstalls, swivels for leading or linking reins, and stubs or rivets or swivels for the curb chain. The mouth piece is either of one entire piece, or of two or three pieces hinged or jointed, and either straight or curved. In the middle is a roller or two, on each side of which is a hole for the insertion of a wire carrying a sponge. On the part that lies on the bars are two or four rollers made large enough to prevent hurt to the tongue by the pressure of the mouth piece; these are either fluted or plain, and holes are drilled through their sides, that in rolling they may convey fresh and cold air to the horse's mouth. For young or tender-mouthed horses the rollers are covered with leather. The ends of the mouth piece serve as axes for the branches, and a boss or cap is screwed on each. The road bit is somewhat simpler than the military bit; it has four branches, whereas the latter has five. The hunting bit differs from both in the position of the branches, the principal or longest one pointing towards the eye, while in the other two it points towards the nose. The cross bit is constructed with three branches, two of which form a cross. In one of these branches is put a stub to which two curbs are fastened, one above and one below the horse's mouth. The fifth and simplest bit is made with a single branch (having reins at the end) curved both above and below the horse's mouth, and a piece to which are attached the headstall, the leading rein, and the bradoon or snaffle reins.

[Printed, 1s. Drawing. See Rolls Chapel Reports, 6th Report, p. 123.]

A.D. 1750, April 6.—N^o 655.

THOMPSON, JOHN.—“A chair or carriage for one person to “travel in, with one wheel and harness for the horse to draw the “same.” The one wheel is situate at the back of the carriage, and over it is a frame which keeps it from twisting, and whereon another seat may be placed if required. The carriage has two shafts fastened to a frame which goes over the horse's back; they are united by a band passing round its chest. “A slider” is

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fixed to the upper part of the frame; it moves backward and forward "for ye easement of y^e horse." "A steel runner" helps to steady the shafts; it has a small pad under it against the horse's shoulder. The saddle has on the top of it a ridge with two steel pins to keep the slider in its proper place. There is no description of any other part of the harness.

[Printed 6d. Drawing. See Rolls Chapel Reports, 6th Report, p. 124.]

A.D. 1761, August 3.—N^o 764. (* *)

DUNDAS, GEORGE.—" Engine or machine for plaiting or "weaving of whips."

This Specification is as follows :—

" A square wood tube fixt perpendicular; at the top, middle, " and bottom of it is fixt horizontally a circular board; upon " the top board is placed a wood collar, with scollops cut out in " the edge; but as collars of different numbers of scollops are " required, they are moveable to the form of those scollops, and " in them are placed pieces of brass, with rollers in them, upon " which the gutt that is worked upon the whip moves, one end " of the gutt being fixt to the whip which rises out of the tube, " and the other to lead weights that hang beneath the top board. " Round the top board moves, upon rollers, a wood collar, which " is confined to its place by rollers that are fixt upon standards " which rises from the middle board that is fixed to the tube. " Upon this collar are moveable pegs, to varey with the different " scollop boards that are upon the top board that is fixt to the " tube. These pegs, as the collars are moved, force the brasses " from one scollop to another; and as a peg is fixed to receive " each brass, the whole have their movement together. At the " top of the lead weights are springs, which, striking against the " collar that moves, unwind the gut that is wound upon them to " the same degree as it is worked upon the whip."

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 157.]

A.D. 1764, October 29.—N^o 816.

TREDWELL, RICHARD.—" New-invented springs for saddles, " pillion, and their stirrups." The patentee carries out his invention by means of " a steel bow or bows fixed with swivels, " loops, or staples to two or four corners of the saddletree to fix " the webbs or leathers to, with a steel plate or plates screwed or

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“ rivetted to the hind or fore part of the said saddletree bow or
“ bows, worm or plate spring or springs fixed within the tree of
“ the saddle or pillion at each or either end, sides, or middle of
“ said tree or pillion, either with or without a bow or bows,
“ swivel or swivels, loop or loops, to fix the webbs or leather to,
“ worm or plate springs fixed on both sides of the saddle or
“ pillion for the stirrups, which may be done and fixed in various
“ shapes and forms.”

[Printed, &c. No Drawings. See Rolls Chapel Reports, 6th Report, p. 159.]

A.D. 1767, November 11.—N^o 885.

BATTISCOMBE, CHRISTOPHER.—“ New-invented machines
“ for preventing dangers which often attend persons falling from
“ their horses by entangling their feet in the stirrup.”

At the top of the stirrup is a swivel on which a flap or bar is suspended; this bar being too wide to pass through the stirrup can be raised only on one side. It is set low enough on the stirrup to prevent the foot from entering too far, or in such manner as not to let the toe when raised catch at the top of the stirrup. It must be fastened so slightly to the stirrup at its extreme points that a very small force shall open it; the fastenings are made either by springs, or by the tightness of the work in a return of the bar at its extreme points.

[Printed, &c. Woodcut. See Rolls Chapel Reports, 6th Report, p. 18.]

A.D. 1769, May 23.—N^o 926.

STELL, ANNE.—“ A most certain and infallible method to
“ prevent the danger which often attends the hanging by the
“ foot or leg in the stirrup by riders falling or being thrown from
“ their horses.” An angular staple of iron or other metal is
rivetted or screwed at its extreme ends to the saddletree. In the
under part is a groove, in which a steel spring is fixed by an iron
pin. At the end of the angle is another groove, in which an iron
or steel trigger is fastened by a pin on which it turns. This
trigger “ is compressed upon the under side by the steel spring
“ fixed in the groove, which regulates this trigger in its motion of
“ turning up or falling down; it also fixes and holds it steady
“ and fast when it stands upright. Between this trigger and the
“ perpendicular angle of the staple (and upon that projection) the
“ stirrup leather is hanged, which supports and bears the rider.

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“ and stirrup-iron. To the said inner perpendicular angle of the “ staple is fixed by a screw a steel spring to receive the trigger or “ finger : when the rider’s foot or leg hangs in the stirrup, the “ stirrup and leather draw back and form a sloping or angular “ line,” and, as the horse moves forward, the stirrup leather presses upon the trigger and causes it to open and fall down.

[Printed, 4*d.* No Drawings.]

A.D. 1770, December 7.—N° 973.

BAILEY, THOMAS.—“ Making and manufacturing saddles and “ housings, or saddle cloths, so as the same shall greatly exceed “ in beauty, convenience, and durability any saddles and housings, “ or saddle cloths, made and manufactur’d on any other con- “ struction or principle.” The saddle is of the ordinary construc-
tion; two buckles are fixed “ on the fore part of the tree under “ the flaps,” one on each side, and two slits are cut “ in the fore “ piece of the under flap even with the hollow or staple nails.” A head or frame of any hard metal or tough wood, covered with stuffing and with leather or cloth, is attached to the saddle by passing two straps (fastened to the cover) through the staple nails and slits, and buckling them to the buckles. The hind part of the frame is fixed to a surcingle. The housing or saddle cloth is composed of three layers of any fabric; the outside one, which is of finer material, is pasted, glued, or otherwise secured to the middle one; it is painted, varnished, or ornamented, according to the fancy of the purchaser, all over except the part which lies under the saddle and flaps. The under layer or lining is of the usual stuff and make; and, to protect the ornamentation from the horse’s sweat, the middle layer may be painted, or an oilskin may be placed between it and the lining. The housing may be made of leather.

[Printed, 4*d.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 160.]

A.D. 1771, January 17.—N° 981.

BAYLEY, WILLIAM.—Improvement in blacking. This black-
ing is composed of “ one part of the gummy juice that issues “ in the months of June, July, and August from the shrub called “ the Goat’s Thorn,” four parts of river water, two parts of
neats’ foot or some other softening lubricating oil, two parts of
superfine ivory black, two parts of deep blue prepared from iron

and copper, and four parts of brown sugar candy. When the water has evaporated, and the composition is of a proper consistence, it is formed into cakes.

[Printed, &c. No Drawings. See *Repertory of Arts*, vol. 8, p. 98.]

A.D. 1775, June 10.—N^o 1098.

HAWKINS, CHARLES.—"Pillions, or mail millions." The frame is made of three pieces of beech-board, the two which form the flaps being equal in size, a little rounded at each outside corner, hollowed on the inside edges, and sloped on the side which is set next the horse; it is covered with lining cloth glued all over it. Two thin plates of well-tempered iron, one on each side of the foremost points of the frame, are twisted so as to lie flat against the under side of the saddle-tree, "in which a grove is cut to receive them before the tree is plated, that the two irons of the said pillion may go in and out at pleasure between the said plate and tree." Two iron bows are rivetted across, the one before, the other behind, on the top of the frame, which is then covered on the same side all over with a piece of strong lining cloth nailed tight thereon: there are also straps and buckles nailed on each side on the top of the frame. The whole bottom, or that part of the frame which is to go next the horse, is covered all over with woollen serge, and an eve or border of lining is sewed to that part of the serge which is at the back of the frame. "The eve is cut of different breadths, so as to contain the stuffing in such sort as the horse's breech requireth to make the pillion have regular bearing thereon; then the edge of the said eve is nailed round the outside of the frame; but neither the eve nor any stuffing comes nearer to the fore part of the pillion than within eight inches or thereabouts of the foremost points of the wood frame, the top of which is covered with broad cloth, &c." The mail pillions are made on trees commonly used; they have, however, the two irons before mentioned between the plate and the saddle-tree; they have also stuffing under the bottom of the frame, so that neither they nor the pillions "in the least touch the loins and reins of the horse, and the weight of the burden beareth on the crup."

[Printed, &c. No Drawings. See *Rolls Chapel Reports*, 8th Report, p. 168.]

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A.D. 1776, June 7.—Nº 1127.

WALKER, JOHN.—“A spring saddle and stirrups upon a new construction.” The patentee uses in the manufacture of his saddletrees spring or elastic bars of steel (instead of the ordinary wooden bars); these, “by lying low and being placed a good space asunder, are more out of the reach of feeling by the rider.” A proper foundation being laid, the seat is formed of soft stuffing, or by stretched webs, which, when seated on, sink and rise by means of the springiness or elasticity of the bars.

The stirrup invented by the patentee is of such a height as to clear the fore part of the rider’s foot; and to prevent the foot passing quite through the stirrup, a plate is fixed or hung by a joint to the top with a spring to keep it in its proper place. In case of accident the foot easily forces the plate up, and is immediately disengaged.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 163.]

A.D. 1780, May 4.—Nº 1254.

LINDOPP, THOMAS.—“A saddle upon a new construction, called the scoop saddle.” The object of the invention is to do away with saddle bags. To effect this the patentee manufactures an additional or false tree, which, together with the ordinary tree, forms the top and bottom of the saddle, and with a leather round them, affixed to an iron or steel bar on each side, makes a cavity which will contain divers articles of wearing apparel. The upper tree is constructed to fit the lower one; it shoots in behind and drops into a socket at the pommel by means of proper irons and catches, and fastens with either a spring or a lock. The saddle may be made “with one tree only with hind and fore parts, which are supported and held together by an iron or steel bar on each side, and another in the middle.” Over this is stretched a strong web, (which is substituted for the false tree) which being filled with soft stuffing forms an easy seat.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 165.]

A.D. 1780, September 15.—Nº 1264.

BULL, MARK.—“A machine for supporting an umbrella, which may be fixt to any saddle or wheel’d carriage, being far more compleat than anything hitherto invented.” The invention

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is described in the following words:—"There is a ball and "socket of steel or iron, or any other metal or composition. The "ball moves in any direction, and is fixed by one, two, three, or "more points, which are forced against it either by a screw or "spring. The ball is made with small cavities to receive the "points which press against it. In order to secure it the more "effectually in the ball, there is a hole which receives the one end "of the staff of the umbrella, which is secured in it either by a "spring or screw, or a sliding or spring bolt. The umbrella may "be taken away from the staff, and either put under the seat of "the saddle, or fix'd before the rider. The staff may be made "whole or in two pieces, the one to slide within the other, in "order to raise or lower the umbrella, and be fix'd either by a "spring or screw. They are fix'd in the head of the saddle, and "cover'd by a top, without making the saddle appear in the least "different from what they are now made."

[Printed, 4d. No Drawings.]

A.D. 1782, January 9.—N^o 1314.

PEOVER, JOSEPH.—A saddle which will fit horses and mules of all sizes equally alike. In the man's saddle the tree is made of wood, divided into two equal parts at the middle of the head and cantle, and connected with leather on the upper and under side. The tree is further united on the under side with leather from head to cantle, such a distance from the top as to prevent the head and cantle from touching the horse's back. The pannel is stuffed all round equally alike. In the woman's saddle the tree is of wood, and its two heads are separated from the bars and again joined to them on both sides with leather. It is cut in two at the middle of the cantle, and the parts are again connected with leather on both sides. In all other respects the saddle is made similar to the man's.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 166.]

A.D. 1783, June 2.—N^o 1375.

HAYWARD, ROBERT.—A stirrup "constructed on a new principle entirely, to prevent accidents of entangling the foot." One side of the stirrup is made separate from the rest. This side is hinged or jointed at the lower end to the bottom or foot bearers, whilst the upper end is provided with a steady pin which enters

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an eye or hole near the top of the stirrup. This side is supported by a spring which is dovetailed or screwed to the bottom of the footbearers and the opposite side of the stirrup. The construction of the spring "is similar to a common shutting knife."

[Printed, 4d. Drawing. See Rolls Chapel Reports, 6th Report, p. 187.]

A.D. 1783, December 1.—N° 1404.

VANBUTCHELL, MARTIN.—"New spring bands or fastenings for the apparel or furniture of man or beast." These spring bands are composed of silk, catgut, hair, thread, and such like substances, twisted as tight as the materials will bear, and "put in straight, cross, diagonal, and all other lines, as may best suit the design," and of wire of gold, silver, copper, or other metal or mixture of metals, wound into spiral springs; the wire may be covered with silk twist, mohair, thread, &c.; the springs may be covered with gold or silver lace, silk ribbon, and other materials. The springs are fixed by means of buckles, buttons, studs, clasps, hooks, rings, and in other ways; they are employed by the patentee for every conceivable purpose; for all articles of apparel male and female; for "chirurgical, military, naval travelling;" as a fastening for a watch "to keep it safe in the fob;" in harness for carriages and horses; in horse shoes, in saddletrees, in stirrups and stirrup leathers, and as a fastening for the perch bolt of a carriage. He describes also a new-invented hook made from "a blanket pin" by bending one end into an eye, and the other into a hook; and a fastening for bridle harness and other leather, consisting of a long rim like a buckle rim, with a bar across the middle, and on the top of the bar a round pointed pin nearly upright, and "in or about the middle, and at the under part of each end of said rim, is a round pointed pin nearly down right," which pins "serve for tongues and chapes by going into holes made in the leathers to receive them." The horse shoes have grooves or furrows all round them, "to keep the beasts from slipping."

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 188.]

A.D. 1784, June 4.—N° 1436.

MAXFIELD, THOMAS.—Improvements in saddles. The patentee obtains an elasticity in his saddles by the use of gut strainings in the place where web is employed to strain the saddletree. The

gut is prepared with lime, salt, alum, and lees ; when dry, it is varnished, sized, oiled, or painted. He forms "the straining on a frame or saddle-tree, much in the shape that the webb lies on a saddle when strained ;" each consists of forty or more lengths of strong gut. "In making the saddles, they are to be nailed to to the head of the saddle-tree, and then strained through holes in proper divisions in the hinder part of the tree and nailed, the cross straining and other work following the same, as in other saddles."

[Printed, 4d. No Drawings.]

A.D. 1786, March 11.—N° 1538.

THURGOOD, RICHARD IRELAND.—Improvements in the construction of spurs. "The intention of these new-invented spurs is to prevent them catching in the apparel." After the spur is forged, a hole is drilled through the back and neck at the end of which is a circular guard. This guard is cut down the middle horizontally to receive the rowel, which is rivetted or screwed (but capable of turning) to a cylinder passing down the hole. A spring, into which the other end of the cylinder screws, is fixed to the inside of the back of the spur. By this arrangement the rowel is contained within the guard, and projects only when the heel presses against the spring. There are various modifications described. The rowel may be in one solid piece with the cylinder; or it may consist of a single spike screwed thereto, when the guard need have only a hole drilled through it. The inside spring and cylinder may be dispensed with by attaching a spring guard to the neck of the spur. The neck may be shorter than usual, and have fixed in the end of it a pin round which a coiled spring is wound : part of the cylinder may be a spiral spring screwed to the back of the spur.

[Printed, 10d. Drawing. See Rolls Chapel Reports, 6th Report, p. 174.]

A.D. 1786, March 27.—N° 1541.

ANTLEY, JOSEPH.—A spur on an entirely new principle. The neck of the spur is made in two parts, both hollow. A piece projects from the fixed part, and to the end of the projection is screwed the rowel round which a spring is coiled, the rowel being a single spike. The moveable part of the neck, which has a slot at its extreme end, is slipped over the spring into the fixed part, and secured by a screw which passes through a slot in its side. Pre-

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sure with the heel forces the moveable part farther into the fixed part, and causes the rowel to project through the extreme slot.

[Printed, 4d. Drawing. See Rolls Chapel Reports, 6th Report, p. 175.]

A.D. 1786, July 1.—N° 1549.

CHESTON, THOMAS.—“Making elastic spring buckles and “spurs in gold, silver, iron, steel, copper, pinchbeck, or other “mixed metals to be plated with gold and silver.” The patentee manufactures buckles, spurs, shanks for spurs, and springs for spur necks, and makes them “elastic or springy” by repeated hammering, or stamping, or rolling. He is more precise in describing the manufacture of the above in steel. After shaping them, he turns the bridge or middle part of the buckle towards the under side; or he rivets or otherwise fastens a bridge on the middle of the buckle for the purpose of affixing thereto a chape and tongue; he then hardens and tempers them. The neck of the spur is rivetted, screwed, or soldered to the shank or heel part; the spring is put on the neck, and a moveable cap is added; the rowel is exposed by pressing the cap against the spring.

[Printed, 4d. No Drawings. See Repertory of Arts, vol. 5, p. 19: Rolls Chapel Reports, 6th Report, p. 175.]

A.D. 1786, August 25.—N° 1557.

ROBATHAN, THOMAS.—Bridle bits, snaffles, and bradoons upon a new construction. This invention consists in a peculiar method of attaching buckles, loops with tongues, hooks, &c. to bits. Buckles are affixed by screwing, rivetting, dovetailing, jointing, or other suitable process, whereby they are “worked in “and are parts of the solid sides or cheeks of the bits.” Hooks are fastened in a similar manner, and springs are “fixed to the “sides or cheeks so as to lie close to the hooks; and the buckles “and hooks with springs are also affixed and annexed to the bits, “snaffles, and bradoons with links, rings, and chains,” for the convenience of putting to and taking off the reins and other work therefrom. The buckles and other articles mentioned are made of iron, steel, or plated metal.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 6th Report, p. 175.]

A.D. 1786, September 29.—N° 1558.

THOMAS.—“A new method or methods of applying to saddles, stirrup irons, martingal rings, whips, hunt-

"ing caps, belt buckles, bridle bits, trottis for coach, phaeton, " or other kind of harness, squares for stable collar reins, trusses " or bandages for ruptures, and milking pails." In saddles, springs, to which the webs are joined, are let into the hinder part of the tree; steel springs, covered with leather, form the fore points of the tree, and one is fixed on the hind points. After the tree is strained, worm springs are placed across the twist, just behind the stirrup bars, so that the girths may be always tight. The crupper loop is joined to a spring, and "to the longhead" is applied a steel spring covered with leather. In stirrup irons the hind bar is fixed with a spring "on the under side, or in the "groove when not required to move;" or "the main ring" is held in its place by a spring fixed on each side of the irons. In martingal rings a spring "stands up to answer the shoulder." In telescope whip handles "a spring is fixed to the lower part of the "top," to catch into a ring and prevent the parts from coming asunder. In hunting caps a worm spring is introduced at the back to improve the fit. In belt buckles a spring is fastened down the side, "so that the pecker opens and shuts the same as a knife." In bridle bits a spring is attached to the lower part of the cheek, for the purpose of lengthening or shortening the purchase. In trottis a spring is fastened to that part which enters the socket. In squares for stable reins a jointed spring forms the lower side, in order that the rein may be readily released if the horse hung his leg. In trusses two springs are placed between the metal plates of the bolster. In milk pails the haip, "being fixed to a "spring which goes over a catch, is screwed from coming off."

[Printed, &c. No Drawings. Non Rolls Chapel Reports, 6th Report, p. 178.]

A.D. 1788, July 8.—N^o 1658.

YATES, JAMES.—"A new method of multiplying engravings or "chasings on all kinds of metals, particularly applicable to the "engravings or chasings on the ornaments of coaches and coach "harness." When the design has been engraved on a solid block of metal, the block is fixed in a metal die, which has round it a ring or collar rising higher than the block. A metal force or block "is then impressed upon the engraving, and, with thin plates "of soft tin or lead or mixed metal, is laid under a stamp or press, "by the force of which a perfect impression is made." Thin plates of gold, silver, plated metal, &c. are then stamped, and the

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raised side of the impression is filled with melted lead, tin, &c. or hard cement, to any thickness required. "For some purposes a " steel, iron, or other metal roll is engraved of any design required, " and an impression taken off by another counter roll of metal, " and then plates of thin metal of any kind are passed between the " rollers by the force of a mill, and the raised side of the impression is afterwards filled with metal, &c. as before described."

[Printed, 4*d.* No Drawings. See *Repertory of Arts*, vol. 12, p. 309; *Rolls Chapel Reports*, 6th Report, p. 179.]

A.D. 1790, February 23.—N^o 1727.

HANDS, SAMUEL.—"Method of ornamenting all kinds of " buckles, straps, coaches, chaises, phaetons, harness, and accou- " trements of leather or paper." Ornamentations of gold, silver, and all other metals, glass, pearl, ivory, or other substance whatever, are inlaid by cutting, drilling, chasing, or pressing. Such as are inlaid by cutting, drilling, or chasing, are fixed with a cement in or upon the article to be ornamented; such as require pressing are attached with a glutinous substance, rivet, screw, or any other fastening; the whole is put into a pair of suitable moulds, and softened by heating the moulds in water or steam; the moulds are then pressed together until the ornaments remain perfectly secure and fast. Any kind of ornamentation may be stamped, sunk, or engraved in the moulds and impressed on the enclosed articles, and the impression may be inlaid or not at pleasure. Ornamentations of the like kind may be inlaid in horn or any kind of pulp by similar processes.

[Printed, 4*d.* No Drawings. See *Rolls Chapel Reports*, 6th Report, p. 183.]

A.D. 1791, May 28.—N^o 1810.

KELLY, JASPER AUGUSTUS.—"A saddle-tree and saddle upon " an entire new construction." The bars, pommel, and cantle are made of whalebone fin, secured by means of brass, iron, or other metal, rivetted with copper, iron, or other rivets. A piece of strong undrest hide is put to the head and cantle between the metal and whalebone. The tree thus formed may, or not, be covered all over with hide; it is strained and cross-strained with gut, web, or other material which may be considered best for obtaining a light, elastic, and easy seat. To the front web or other material is fastened a spring stirrup loop of metal, the upper

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part of which has a small collar brazed on to prevent it from drawing through the loop of the web, and the lower part at the end next the cantle is provided with a spring joint, which will in case of accident open and release the stirrup leather. The other parts are made in the ordinary manner, but the patentee prefers that the cover should be sewed on, and the pannel tied into the saddle, thereby making a complete and elastic saddle "without wood, iron, tacks, or nails."

[Printed, 4d. No Drawings.]

A.D. 1791, July 19.—N^o 1821.

DUNN, EDWARD, and JACKSON, WILLIAM.—"Certain improvements in the construction of saddles and stirrup irons." The saddles are intended to fit horses of all sizes. To effect this the plates are made in two parts and jointed at the middle, the side parts between the joints being bevilled off on the upper and under sides. Through the joints passes a rivet, having on its middle a screw which gives motion to a nut or wedge "somewhat in the form of a double dovetail reversed." At one end of the rivet is a collar or shoulder with a square socket for a key, and at the other end a collar to prevent the rivet from drawing a nut (attached to the end of it) through, when the plates are in motion. The upper part of the wedge is bevilled off, so that, when it is fitted to the bevels of the plates, by turning the key it slides forwards or backwards, and expands or contracts the jointed plates. The stirrup is made as follows:—On each side, about halfway down, is a joint. At the back of one side is a piece of steel, which is fastened to it only a short distance above the joint; it, however, lies close to it, keeps the side stiff, and has a pin or catch at its upper end. The eye of the stirrup is jointed, and is keyed down by the catch. When the fore part of the rider's foot is thrown up, it bends the joints in the sides, which motion forces the pin back, and disengages the jointed eye. The same end is gained by keying the eye to the stirrup by a wedge, and attaching to the arch a spring bow, or jointing a solid bow thereto, in such a position that, when it is pushed back by the fore part of the foot, it forces out the wedge.

[Printed, 1s. Drawing. See Webster's Reports, vol. 1, p. 77; Carpmael's Reports on Patent Cases, vol. 1, p. 106; Davies on Patents, p. 146; Burnford and East's Term Reports, vol. 1, p. 62.]

A.D. 1792, April 18.—N^o 1868.

JENNER, STEPHEN.—“An escape for horses, by means of “ which they may disengage themselves from their halters when “ entangled therein.” The escape is fixed in the rail of the manger,—there is a similar apparatus on each side—it is composed of 1. a “short lever” working on a pin or hinge, the lower end being made thin “to fit into the under part of the rail to give it “ strength, and prevent its being torn off by the horse when he “ hangs back or looks over either side of the stall;” the upper end of the lever is fitted into the top of the rail, “to prevent the “ horse’s raising the levers with his teeth; it is made heavier than the lower end, “to keep it in its proper place and counter- “ balance the halter and weight at the end of it on either side. “ after the halter’s rein has been discharged in the opposite; ” 2. a “wheel” working on a pin, or an “oblique surface” screwed to the rail; 3. an “opening” on the top of the wheel and corresponding part of the lever “for the halter’s reins to run in; ” and 4. an “opening” at the side of the wheel, “by which the halter is “ discharged from the rail.” If the horse gets his foot over either rein, it is, by his hanging backwards or plunging, immediately drawn to the lower part of the side opening, over the wheel, and down upon the lever, “which gives way, and the halter is dis- “ charged, and the horse freed from his dangerous situation with “ respect to that one rein.” A spring may be substituted for the lever, but the patentee does not recommend it.

[Printed, 6d. Drawing.]

A.D. 1792, June 6.—N^o 1886.

VULLIAMY, BENJAMIN.—“Certain improvements in the building of two-wheel carriages, together with applicable improvements in the harness.” The first improvement consists in the application of two moveable shafts, one on each side of the pole, attached by a hinge or other suitable means to the fore bar or other convenient part. On the pole is a loose ring with two loops on the upper part; on each shaft a loose ring with a loop above and below. The shafts are connected to the pole by straps, which pass over rollers on the saddles and buckle on to the loops. Other straps buckle to the lower loops on the shafts and are fastened at the other end to the inside of the saddles or to the girths under the belly. By means of these fastenings the horses

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" resist the raising or depressing of the shafts or braces, when either of the wheels by being elevated tends to overturn the carriage." The pole is provided with a stop joint a short distance behind the ring; "this joint, in case one of the horses should fall down, will permit the end of the pole to be pulled downward, and thereby prevent the breaking of the pole." The shafts are provided with stops to prevent the rings from sliding forwards, and the upper straps have stops on them on the side of the rollers next the pole to keep them in their place. The ordinary cross-bar may be used or not, as is found most convenient. The second improvement consists in the application of a spring, "which will preserve the level of the chaise," to the shafts or pole. The spring, which may be applied to any part of the shafts—the patentee recommends a distance of from nine to twelve inches from the axletree,—is fastened at each end to the under side of the shaft, and a plate of iron is fixed on the upper side over the spring. The shaft between the plate and spring is then to be entirely cut away; or the spring may be fixed to the upper side of the shaft, and a bent spring to the under side.

[Printed, 10d. Drawing.]

A.D. 1792, September 7.—N° 1908.

SMITH, JAMES.—"An improvement in the construction of fastenings for shoes and spurs." The patentee describes his invention in the following words:—"I take steel, or any other metal or substance capable of retaining its elasticity, and having brought it to a proper form and strength, agreeable to the purpose for which it is intended, I affix to, or make out of the same piece at the extremity thereof the fastenings designed to take hold of the shoe or boot, which consist of either hooks, points, knobs, holes, or any other contrivance of that nature, which will take fast hold, and be easily released when required. This elastic piece or spring may be of any form, plain or ornamented, or so contrived that the ornamental part of any buckle, ribbon, &c., usually worn, may be affixed thereto." Spurs may be attached to boots by the help of this invention.

[Printed, 6d. Drawing.]

A.D. 1793, January 15.—N° 1931.

VAZIE, ROBERT, the younger.—An improvement in girths, and in the method of fixing them to saddles. For harness saddles.

SAD.

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the patentee employs three girths, for riding saddles, two. The harness saddle has at its fore part or point a metal triangle or square, a little farther back two leather straps, and a metal loop on each side of the cantle. A double girth, having near its middle a leather loop or metal hook, is attached to the saddle by buckles on its hinder part fastening to the straps, and by straps on its fore part, which pass through the triangles or squares. Two leather girths pass from the cantle, through the loop or hook under the horse's belly, and buckle on to the double girth straps. On the back end of each leather girth is screwed another leather girth or strap, enclosing a piece of metal or chain (the metal being bent to the shape of the horse); at the upper end thereof is an eye, by means of which it is fastened to the loop on the cantle. To this metal or chain are fixed the rings or squares to which the trace and pole piece are attached, the other end of the trace and pole piece being fixed to the carriage in the usual manner. The side of the girth next the horse is lined to the extent of the metal or chain to prevent chafing, and the trace and pole pieces are lengthened or shortened by means of buckles. Modifications may be made without departing from the principle of the invention, namely, the diagonal girths, whereby carriages may be drawn without the assistance of a neck or breast collar, and be stopped or held back without a breeching. The carriage may be drawn by means of the pole. The pole is united by an iron hinge or leather loop to the cross-bar, which is connected to the saddle by a piece of metal formed to receive and bear the same. The hinge or loop is strengthened by a leather trace, cordage, or chain, which is made fast at one end to the middle of the cross-bar, and at the other to the pole or carriage, by a hook or link on the fore bar. The riding saddle has two straps stitched or nailed to the fore point, and two towards the cantle; two girths, united at the middle, are buckled to these straps, in such a manner that they cross under the horse's belly.

[Printed, 8d. Drawing.]

A.D. 1794, May 27.—N^o 1992.

JONES, EDWARD.—“A woman's saddletree, with a spring head “to fall down.” The object of this invention is to prevent danger “upon a horse tripping, falling, or running away with “the rider, who can with ease disengage herself from the saddle.”

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The object is effected by making the near side head or horn of the saddle-tree to move, fall, or drop down by means of a spring or springs, catch or catches, or other suitable contrivance fixed to the tree by screws or other proper fastening. "The horn " or head is made to fall or drop down at the collar welt, or bottom " of the head, not only on a parallel with the off-side head, but as " low as to rest on the point of the tree; and when made into a " saddle it rests on the seat and skirt near the tuffnail, and there- " by precludes the least entanglement whatever."

[Printed, &c. No Drawings. See Repository of Arts, vol. 4, p. 9; Rolls Chapel Reports, 6th Report, p. 104.]

A.D. 1796, January 19.—N^o 2082.

KELLY, JASPER AUGUSTUS.—" Certain new improvements in " the construction of harness." The patentee claims five im-
provements. 1. To render the collar and harness easier to the
horse, staples, rings, or loops are fixed on the collar or hames;
through these are passed " leather straps, ropes, or other strong
" materials, with or without buckles, sufficient in proportion
" to draw the carriage." They are all fixed to any ring, buckle,
or other contrivance to which the trace or tug may be fastened.
By this means the draught of the horse or partial bearing of the
collar is eased. 2. To make the draught easier still, to the above
improvement are added springs on each side, fastened to the trace
or collar; any sort of spring may be used, provided it has the
power of shortening or lengthening the trace, &c.; they may be
fixed at either end, or in the middle, or to the splinter bar. This
improvement may be added to all sorts of collars and harness.
3. To remove the disagreeable motion of a two-wheel carriage
and save the horse from the bruises he receives by the jolting of
the shafts, any spring which will expand or contract is joined at
one end to the back-band or to the saddle, and to the other end a
strap is fixed, which buckles to the tug, and passing under the
horse fastens to the other side. 4. To give greater ease to the
bearing rein, a similar spring is fixed within the saddle, so that,
when the bearing rein is hooked on, it will draw out or return,
according to the motion of the horse's head. 5. To give elegance
to the harness and greater ease to the horse, the hames are made
of whalebone properly prepared and polished. For heavy car-
riages a lining of metal will be required. To the hames are
fastened the staples, rings, &c., as in the first improvement.

[Printed, &c. No Drawings.]

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A.D. 1798.—April 18.—N^o 2229.

HOLLICK, FRANCIS.—“An iron or other comb, to be affixed in several ways to the edge or on the outside of a curry comb, either to stand up, or by means of springs to be laid down and raised up.” The title explains the peculiarity of this invention, which consists in affixing an immovable mane and tail comb to the edge of a curry comb; or in fastening to the back of the curry comb two sockets with a spring to each of them; the mane and tail comb is fixed to these springs, and by means of them is laid down or raised up as occasion may require.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 6th Report, p. 194.]

A.D. 1800, July 24.—N^o 2426.

HESSE, EMANUEL.—“Certain new improvements on stirrups.” The principle of this invention “consists in giving an elastic motion or spring to that part of the stirrup on which the rider’s foot rests. The stirrup is made with a double bottom; the lower one is fixed to the ends of the stirrup legs and provided with springs of any kind; the upper one is placed on the springs and prevented from rising too high by shoulders on the legs; or the upper may be connected to the lower bottom by a joint or joints, so as when playing upon the springs to produce a folding motion like two leaves of a book that open and shut.” To conceal and preserve the springs, plates are fastened or brazed to the upper bottom.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 13, p. 371.]

A.D. 1800, August 2.—N^o 2435.

REDDELL, ISAAC HADLEY.—“A new method of making stirrups, in which the feet cannot possibly be entangled.” These stirrups “are made nearly in the form of the fore part of a man’s shoe, and are made either of iron, steel, or metal, or of any proper composition.” In some stirrups the stirrup leather passes through a loop at the top, which is either a fixed appendage or capable of turning on a swivel; in others it goes “all round, or underneath, or a part of the way round, the stirrup or metallic part.” The bottom or tread of the stirrup is made long enough to extend from the toe to the heel; and on the heel part may be affixed a spur, “which, by means of a spring or springs, and a joint, or any other device to answer a similar

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" purpose, may either be turned up against the heel, and be ready for use in an instant, or be turned down under the tread, and be effectually out of the way." The spur, or the spur and heel part also, may be made to take off or put on by means of a screw, slide, spring, or bolt.

[Printed, *4d.* No Drawings.]

A.D. 1801, May 2.—N^o 2496.

EDWARDS, JOHN.—" Collars for horses to draw by, on an improved construction," which collars are thus described by the patentee:—" The outside shapes are cut out of neats or other leather, to which the draught or purchase is affixed by pieces of neats or other leather, which pieces of leather are doubled round a direct or indirect triangle or ring made of iron or other proper metal; then the said pieces of leather (with the triangles or rings affixed to them) are sewed or stitched to the proper part of the collar, by which means the draught or purchase is not fixed to the hames, which is the case in all other collars, and the hames are rivetted on or otherwise fastened to the collars. The hames are made with a sweep and a bend, so as to form round the horse's neck in order to prevent the shoulder bone being pressed on in the smallest degree. The collars are made open at top, and are buckled or fastened on so as to avoid the inconveniency of being put on over the horse's head."

[Printed, *4d.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 180.]

A.D. 1801, May 21.—N^o 2503.

INGLIS, WALTER.—A method of making a saddle upon a new plan; also of so contriving the stirrup bars that the rider will on falling be immediately disengaged and free. Elasticity is given to the saddle by means of a spring introduced into the long straining web which is fastened to the saddle-tree in two parts. The fore part is doubled round one arm of a strong steel spring and nailed to the head of the tree; the hinder part is doubled round the other arm of the spring, and the ends are passed through two slots in the cantle and nailed to the lower part of the outside. The spring will thus rest in a horizontal position over the gullet of the tree just behind the head; it is then to be covered with two pieces of web of sufficient length to nail on each side of

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the bars, one piece being strongly sewed underneath the spring to each part of the web, the other over the spring, which is thus prevented from being overstretched. The stirrup bar consists of three parts : an open box riveted on the bar of the tree a little higher than usual ; a stirrup bar with a short shank to be introduced into the box ; and a double spring bolt, the prongs of which pass through corresponding holes in the bar and box, and thus attach the stirrup to the saddle. To the bolt is sewed a strap, which the rider when seated buttons round his thigh. Should he fall from his horse, the straps will draw the bolts, and the stirrups will immediately drop from the saddle.

[Printed, 4d. Drawing. See *Repertory of Arts*, vol. 15, p. 217 ; *Rolls Chapel Reports*, 6th Report, p. 200.]

A.D. 1801, November 10.—N° 2557.

DICKINSON, ROBERT.—Certain improvements in the construction of and additions to saddles, harness, and other gear. These improvements “ consist in certain springs or elastic portions “ interposed between, and in effect constituting parts of,” saddles, harness, &c. One or more spiral springs are introduced into those parts of the saddle to which the girths, the crupper, and the breast plate are to be fastened. To one end of the springs, which are lodged in “ certain cavities, sheaths, and receptacles,” pieces of catgut, wire, chain, or other fit material are attached, and to the other end of the pieces, straps, buckles, or other fastenings for the ready fixing of the appropriate part of the harness. Or the springs may be enclosed within sheaths “ of metal, “ wood, cloth, leather, or other fit material, so as to form a “ separate piece capable of being applied or attached between the “ saddle and the extremity of the girth,” &c. The patentee does not confine himself to any particular structure, shape, or composition of spring ; a piece of india-rubber may be substituted, but he prefers a spiral spring of steel.

[Printed, 4d. No Drawings. See *Repertory of Arts*, vol. 16, p. 294 ; *Davies on Patents*, p. 299 ; *Rolls Chapel Reports*, 6th Report, p. 150.]

A.D. 1802, February 6.—N° 2578.

DICKINSON, ROBERT.—“ A new or improved method of fixing “ the straps of and to saddles to which the girths are usually “ made fast.” A spring is firmly screwed or riveted to a metal plate which is fixed to the bar of the saddletree on either the upper or under side, but the upper side is preferable. On the

plate is a lever moving on a pin, and so placed that its tail bears against and compresses the spring whenever its other extremity is acted on by the strap which is fastened to it. There is a similar apparatus on each bar, and the girth is buckled to the straps. The plate "is beaded up and presents an obstacle to prevent the "lever from being overdrawn;" the same purpose may be answered by a pin or stud duly placed. Two springs may be applied to the same lever, and the springs "may be varied in their "figure and position with regard to the lever." More than two springs and levers may be employed, fixed either on separate plates or on one large plate, and they "may be boxed up or "included and covered so as to defend the same from injury."

[Printed, &c. No Drawings. *See Repository of Arts*, vol. 1 (second series), p. 247; Webster's Patent Law, p. 128; case 45; Carpenter's Reports on Patent Cases, vol. 1, p. 288; Davies on Patents, p. 209; Billing on Patents, p. 188; Bonaparte and Fuller's Reports, vol. 8, p. 680; Parliamentary Report, 1820, Patent Law, p. 194; Rolls Chapol Reports, 6th Report, p. 181.]

A.D. 1802, February 27.—N° 2588.

LEWIS, JOHN.—"New-invented method for preventing accidents by a horse or horses or other animals drawing a carriage or carriages." The patentee describes the mechanism invented by him, first, for "extricating single-horse chaises." The tufts have rings of brass or other metal within the loops, sufficient to receive and be fastened by a bolt. The belly-band has a loop and ring at each end, fastened by the same bolt. The kicking-strap is either buckled to the traces, or fastened by like rings and bolts of smaller size. To the bolt, which is screwed on or otherwise affixed near the end of the shafts, a chain is attached and led on or under the shaft, and conducted by pulleys to a wheel, and thence to another wheel in a box or quadrant. Other mechanism may be substituted for the bolts and chains if preferred. The traces are fastened to the ends of bolts in the "splintree;" and from these bolts chains are led round pulleys in the splintree to a swivel, where they meet and join, and thence are carried by a chain to a small wheel in the quadrant. Before and behind two-wheel carriages the patentee hangs a leg, at the bottom of which is a small wheel, "to prevent the carriage stopping too suddenly;" at the back, near the middle, is a screw whereto a ratchet works and passes through an eye fixed to the axletree or elsewhere; and near the bottom is a piece of iron which sustains the leg when put up. A hole in this piece of iron catches on a tumbler hinged to a

lever, from which a chain leads to the wheel in the quadrant. All the chains meet in the quadrant, which is fixed underneath the carriage or elsewhere. The leading or commanding chain is fastened to a handle, which is placed in the most convenient part; and by pulling the handle, the bolts are drawn back, the horse is set at liberty, and the legs drop to support the carriage from falling. A spring may be placed at the top of the legs, "which pressing "against the carriage will force the legs down the sooner." Secondly, for liberating horses from curricles. The chain or harness, from the collar to the end of the pole, is so constructed as to slip off or out, upon the horses being disengaged from the carriage and pushing forward, by means of a spring "fastened to the end at "the side of the pole in a loop." The bolt is fixed to the pole near the middle, or to a "round robbin" (which must have a metal ring within it), and the conducting chain is led along the pole immediately to either of the wheels in the quadrant and fastened thereto. The rest of the mechanism is the same as that before described. Thirdly, with respect to "four or more wheeled carriages having two or more horses." The harness, &c., from collar to pole is the same as in the curriole. The traces are fastened to the splintree by bolts, the chains from which are brought along the splintree round pulleys near the middle, joined to the chain from the bolt, and thence conducted to the smaller wheel in the quadrant; or "the harness may be fastened by one bolt "near the pole." When the carriage is intended for four horses, the hook must be attached to the head of the pole by a hinge to fall down when unbolted. The splinter bar is to hang by a loop long enough for the hook to fall through; the hook is to be fastened by the bolt, the end of which is "hollow to receive the "end of the hook." A chain is conveyed along the pole to the smaller wheel, "and the commanding chain led to the driver." To every carriage with three, four, or more wheels, "the quadrant "must be fixed so as to move round with the pole or front "wheels in the center, over the pin that fastens the front wheel "or wheels, to prevent the horses being disengaged by the motion "of the pole." "The application of this plan must have the co- "operation of the driver by his immediately throwing away the "reins." In all kinds of carriages ratchet wheels are to be fixed to the box or nave of the wheels, by which they may be locked or unlocked without alighting. The chain from the lever which locks or unlocks them is carried into the carriage or to the driver,

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as is also the other chain or conductor, which fastens the mandril when the wheels are unlocked; "but if they cannot go immediately to the desired place, they must be conducted round small wheels, where they may be fixed, and the wheels may be locked or unlocked by pulling them." The Specification contains a full account of the method of manufacturing and applying the various parts of the mechanism.

[Printed, 1ed. Drawing. See *Repertory of Arts*, vol. 7 (*second series*), p. 6.]

A.D. 1802, March 9.—N° 2590.

ELLIOTT, OBADIAH.—"An excentrical anti-laborist spring " curricke bar for one or more horses." A horizontal lever slides through the saddle-stands on small rollers, and to prevent it from sliding out of the stands, a round or oval-headed screw is fixed at the ends. In order to give relief to the horses, springs are placed both upon the saddles and directly under the bar. On the saddles are small C springs with an eye on the top for the bar to slide through, and in the eye is a small roller, as in the stands. The C springs having a repelling force keep the weight off the horses' backs in a considerable degree, and the spring under the bar not only has the same effect, but keeps the pole perfectly steady. The bearings of the spring are on small rollers, which turn round as it operates, and greatly reduce the friction. The bearing staple moves in a socket, which always keeps the bar strap perpendicular, whether the horses are of equal height or not, and the round robbin will always keep its position on the pole. For one horse, the patentee fixes in a screw stand instead of the staple; on the top of the spring he screws in turrets for the driving reins, and in the middle a bearing hook for the curb rein. The spring being screwed into the saddle, he fixes the back bands to the ends by small shackles; by this means the back bands slide on to the shafts; and, as soon as the carriage is put in motion, the spring begins to act and takes off a great portion of weight from the horse's back.

[Printed, 4*l.* No Drawings. See Rolls Chapel Reports, 6th Report, p. 151.]

A.D. 1802, March 24.—N° 2596.

MEYER, PHILIP JAMES.—Machinery to be applied to carriages for the purposes of curbing restive horses. To the nave of a carriage wheel is affixed a metallic toothed wheel, underneath which

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is a smaller one so placed that it may lock into the upper one and be turned thereby; "or otherwise it may be disengaged and left at rest." In some cases bevelled wheels may be used." Connected with the carriage frame by two supporters is a roller; at one end its pivot runs loosely in one supporter so as to admit of the roller being tilted; the other end of the axis, on which the lower wheel is placed, turns in a long hole in the other supporter, so that the end may be elevated or depressed by a rope, wire, bar, &c., which puts the lower in connection with the upper wheel. A strong strap is fastened at one end to the roller and wound round it, at the other end to the reins intended to check the horse; or connecting straps may be attached to the strap and the common reins. To the carriage frame are affixed a lever and spring, at the moveable extremity of which is a connecting cord passing through pulleys and buckled or otherwise fastened to the roller strap, thereby serving to slacken the reins when the roller is not acted upon. To keep the strap steadily in its place a clock spring in a round box is fixed in any convenient place; this arrangement will also answer the purpose of the lever and spring. The connecting cord is attached to a lever or arm which communicates with a handle inside or outside the carriage, or with a pedal, by moving which the toothed wheels are connected, and their rotation causes the roller "to draw the reins with a force that no horse can withstand." The connecting cord "must be prevented from becoming too slack by means of a weak back spring to the lever." To hinder horses from backing a bent lever is employed, having its axis "fixed to the solid part of the carriage," and the inner part of its curve fitted to press upon the upper toothed wheel. This lever is so arranged as to be acted upon similarly to the connecting cord; a slight spring, or other adequate means, prevents its approaching the toothed wheel except when required.

[Printed, 6d. Drawing.]

A.D. 1802, March 24.—N° 2600.

WILLIAMS, JOHN.—"A method or means of disengaging horses from carriages." This invention "consists chiefly in the addition of a rolling splinter bar affixed in such a manner to the usual or main splinter bar as will suffer it to turn on its axis when needful," and in the means of fastening the traces to the roller bar. It is affixed by means of collars or eyes, the shanks of which are secured to the back of the main bar by nuts screwed on.

their ends, or in any other suitable way. A "curb lever," forming part of the rolling bar, is made with a flat end and hole through it; the flat end shuts down over the top of a shouldered bolt, the upper end of which fits into the hole; the lever is confined on the head of the bolt "by a spring bolt made in a metal box, which is secured upon the futchells or any other part of the carriage most conveniently situated behind the main cylinder bar." The spring bolt is kept forced out of the box "by tooth, pinion, and spring," or other suitable means. A crank draws back the bolt, when a cord or strap attached to it is pulled for that purpose. The cord "leads through a hole in the upper transom or immediately over it" into the carriage. On the roller bar are stubs or studs, which are perpendicular when the horses are harnessed to the carriage, but turn over into a horizontal position at the moment of disengaging. At the trace ends are metal looplets (made with or without a joint), so shaped that the upper part passes over the stub, and the lower part under the rolling bar. A metal socket, to which the pole pieces are fixed, fits on to the fore end of the pole, so that, when the horses are disengaged from the bar and move forward, the socket goes off with them; this the patentee does not claim as a new invention. When leading horses are employed, the socket is kept in its place by additional traces hooked on to the ends of the inner traces and the back end of the socket. A carriage with shafts must have a stub on each shaft; and any carriage, which from its construction would fall to the ground as soon as disengaged, must have a piece of iron with a broad bottom or wheel affixed to each shaft or to the pole, "to prevent the motion being checked too suddenly by the fall thereof."

[Printed, &c. Drawing. See *Repository of Arts*, vol. 1 (second series), p. 88.]

A.D 1802, June 14.—N^o 2628.

MALTBY, THOMAS.—A new safety stirrup, which is made of the same materials as ordinary stirrups, but, instead of having a bar to connect the sides or bow, it has a sole plate extending before and behind. Between the bow and the toe three or more ribs or side guards on each side are riveted to the plate and top of the bow, and at the toe is a front guard fastened in a similar manner. The front guard is so constructed that the rider's foot can go only so far into the stirrup as to prevent

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the bow "from passing on the upper part of the instep." This arrangement makes it impossible for the foot to hang in the stirrup.

[Printed, &c. Drawing. See Rolls Chapel Reports, 6th Report, p. 201.]

A.D. 1802, September 27.—N° 2648.

DICKINSON, ROBERT.—Improvements in the furniture, accoutrements, or apparatus useful or necessary for horses. The patentee lays claim to five inventions,—a leaping-bar, a feeding-box, an apparatus for fixing girths and straps, methods for giving elasticity to saddles, and an instrument for measuring the backs of horses. The leaping-bar consists of a rectangular frame, having its longest arms supported horizontally by means of pivots turning on sockets and projecting from the middle of each of the short bars, "so that the frame itself is capable of being turned round upon these pivots, and by that means each of the horizontal bars may be placed at the greatest possible height immediately above the other horizontal bar, by making the pivots square or oval, and causing them to move in contact with a springing collar or hole, or against a back spring." He gives to the bars a tendency to remain in the position last described, or to recover it when by any means struck out of it. Sometimes he makes the pivots cylindrical, and gives the bars the required tendency to assume the upright position by means of a counterpoise. Sometimes he makes the frame with only one horizontal bar and two end pieces, and so arranges the parts that, if a horse in leaping strike the bar, it shall give way and immediately replace itself. The feeding-box is a wooden or metal receptacle for corn, "which gradually becomes narrower to the bottom, near which the corn issues through a side aperture into a small trough." It is set upright or fixed in the manger, and instead of having a bottom, "a square opening of two inches is made at the bottom of that upright face which stands clear of the wall, and to this is adapted a slider, which can be regulated and fixed by a screne, so as to limit the opening." The trough is placed opposite the opening, and the interior is sloped, so that the whole "constitutes a machine in effect resembling the bird-fountain." The third invention is an improvement on the patent granted to him February 6th, 1802. The girth-straps are attached to the lever, on the long arm of which is a vertical tail; to the lower end of this tail is fixed a metal piece to which the straps are made fast. The stirrup-bar is

formed in the plate. At the junction of the lever and tail there may be either a stud on the tail and a notched slot in the lever, or studs on the lever and a key-hole aperture in the tail, so that the tail may be locked at different distances from the centre of motion, and thereby afford a greater or less resistance ; and the application of an intermediate piece between the ends of the lever and spring affords a secure and easy motion. He gives elasticity to saddles by applying one saddle-tree over another and connecting them at the bearings by a screw on each side, "the shank of " which passes through an enlarged hole, so as to afford a loose " fitting and permit the cantles to be moveable with respect to " each other." The trees are kept asunder by any kind of springs placed either between the bars or cantles, or between both. The elasticity between the cantles is adjusted by a stem-wire, or tail, or strap. A better way of rendering the saddle-seat elastic (with only one tree) is to fasten the webs as usual to the tree-head, to fix a straight spring horizontally behind the cantle, and to attach the other ends of the webs to the spring by passing them through a slot in the cantle ; or to pass a wire or stem through the cantle, and from each end of the spring to which the wire is attached, and at the extremity of the wire above the face of the cantle, to place a cross-bar, to which the webs are properly secured. A spring or springs may be used at the head of the tree instead of at the cantle. The fifth invention is to enable the owner of a horse to transmit the particulars of measurement to the saddler without sending the horse. This is effected by means of a saddle-tree formed of tin and leather in alternate layers, or of materials pliable and partly rigid. The whole front from the pommel to the points is graduated and marked with corresponding figures or letters on each side. The horizontal bars are fitted to the bearings so as to be fixed thereto by a clip and screw, or by any other method. The hinder part of the tree is formed of the same materials and graduated, &c., in the same manner. "As the points of ladies' " saddles are required to be longer than common," certain additional parts are affixed to give the requisite length.

[Printed, *4d.* Woodcut.]

A.D. 1802, November 29.—N° 2664.

ROBERTS, JAMES, and BRINE, EDWARD.—" Certain ma- " chinery for the purpose of drugging or locking the wheels of " carriages of every description, and for instantly disengaging

" the horses therefrom, either with or without their traces, and
" for steering the carriage after the horses are so disengaged." There are seven inventions described in the specification, namely, two breaks, one drag, one method of lessening friction, two of disengaging horses from carriages, and one for steering carriages. The first break is a metal box screwed on to the body end of the nave of the hind wheel; it may be applied to the fore wheel also. Fixed to the end of the box is a coarse screw, to the end of which is applied a half-screw. To one side of the half-screw is attached a joint or hinge, "fixed in such a manner that it may be lifted up and down or drawn backwards or forwards." On the other side are cranks by which the half-screw is lifted up, and which confine it so tight that, when by the motion of the wheel it is drawn up close to the shoulder of the male screw, the wheel is effectually stopped. The cranks serve also to conduct the chain, cord, &c., to any part of the carriage at which it is convenient to place the pull of the drag. The second break is also a metal box with a female screw, fixed as before. In the box is a passage for the arm of the axle; here too is fixed a round plate which serves to confine the wheel on the axle, if necessary. A bolt with a tongue at one end is inserted into the screw of the box when the drag is pulled up; on the bolt is a small spring fastened by a joint screw. One part of the bolt is "made thinner than the rest, that it may clear itself from the screw, and play backwards and forwards" by a joint. At the other end of the bolt is a strong spring: a rod or chain fixed to the joint screw completes the break. A drag for all kinds of wheels is a skid or shoe provided with a loop to hang it by and a small roller on its lower side. To lessen friction the arm of the axle has two grooves round it which, when the wheel is on, receive the ends of two screw-pins that screw through the nave and the box, and effectually secure the wheel from coming off. In a machine to be fixed to the under fore-bed or futchells of a carriage, for the purpose of suddenly releasing the horses, there are as many holes as traces. When the tongues of the traces are thrust each into a hole, they are confined by a circular piece which slides down into notches in the tongues. If it be required to release the horses, a string must be pulled, which is so arranged that the circular piece is lifted out of the notches, and the traces are readily drawn out. A spring confines the circular piece while the horses are attached to the carriage, and a strong pin keeps the whole steady. Drawing buckles are fixed to the

traces for the purpose of travelling with post harness, and are used instead of the studs in the splinter bar, the outside traces being prevented from slipping off by joint staples fixed on to the ends of the bar. Another method of disengaging:—Two parts of a trace are united by a bolt which is kept in its place by a spring that has a constant tendency to press it forward. By pulling a cord attached to the bolt, the spring is contracted, the bolt pulled out, and the trace separated. The steering is composed of a socket jointed to the fore bar; a wheel fixed at one end of a pole, the other end of which passes through the socket; a handle appended to the pole for the purpose of guiding the carriage after the horses are released; and a cord, running in pulleys and connected at one end to the wheel, at the other to a button by means of a ring.

[Printed, 8d. Drawing. See Rolls Chapel Reports, 6th Report, p. 181.]

A.D. 1803, January 20.—N^o 2674.

WILLSON, CHARLES ROBERT.—“An apparatus for the purpose “ of stopping ungovernable horses.” The method proposed by the patentee is to draw a blind over the horse’s eyes. To carry out his invention he encloses shades or blinds in a tube about nine inches long and one inch in diameter, and having a slot on each side of suitable length. The blinds are sewed on to rollers inside barrels, which contain springs for the purpose of rolling and unrolling the blinds, and which are prevented by studs from turning round in the tube. A thumb piece is attached to one end of the rollers for winding up the blinds, if the springs should become weak. The blinds are drawn out by means of reins, and the tube is fastened on at top “where the face piece is fixed to a bridle,” and at bottom to the nose-band.” The blinds may be made to draw from the sides and meet in the middle of the face; the apparatus may be made “without springs, and may be used “without being fixed to the bridle.”

[Printed, 10d. Drawing.]

A.D. 1804, December 19.—N^o 2799.

MAYER, JOSEPH WICKHAM.—Improvements in bridle-bits. In this improved bit the snaffle and curb are joined by the joint, ring, or link, which forms the cheek, by which means the snaffle “acts “gently with the curb, and requires but one head stall.” The curb, which is made of a bar or plate of iron, “requires no curb

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“ chain, as all the force is interior, and acts downward on the “ extremity of the mouth with an even pressure, so rendered by “ giving the tongue a sufficient slant, which causes play to the “ animal, and when reined in, in great measure prevents its “ bearing.”

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 6 (*second series*), p. 321.]

A.D. 1805, January 16.—N^o 2809.

CHIFNEY, SAMUEL.—“ Certain improvements upon bits of “ bridles.” The bit has two snaffles attached to the cheeks by swivels. The lower snaffle has on it two substances “ to give a “ bearing on each side of the horse’s tongue, on the lower jaw,” and as low down in the mouth as the tush will allow; it acts either with or without the upper snaffle. A chain or “ holdfast ” is hooked either on to the part in the horse’s mouth or on to the cheeks. At the end of either the upper or lower snaffle are eyes on the cheeks “ for a martingale to run in;” these eyes have one or more bars in each “ to permit the reins to run back very light.” There are also “ catches to fall on the cheek each side the bit under “ the swivel, which cause the lower bit and holdfast to act at the “ same time.”

[Printed, 6d. Drawing.]

A.D. 1805, May 7.—N^o 2845.

EDWARDS, JOHN.—An improvement in bridles, which consists in fixing on the cheeks of the bit horizontal rings or triangles, through which the reins are passed, and return and buckle to the traces of the harness. For riding, the reins are passed through the rings or triangles, and return and buckle to the saddletree.

[Printed, 6d. Drawing.]

A.D. 1805, May 18.—N^o 2850.

PIDGEON, DANIEL THOMAS.—“ A saddle upon an improved “ construction.” The saddle is constructed with two saddletrees, a space between them forming a receptacle or case. The whole of the pannels of the lower tree is lined with serge or other suitable substance, interlined with oilskin and covered with leather; and “ a border of leather, or other fit material, is made to go round “ close withinside the hollow cavity of the tree.” The upper tree is of cork, wood, iron, &c., and fitted on to the lower one (the

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upper cantle covering the lower one) by means of pins entering sockets in the latter. The cover of the upper tree is of strong hide and drawn so as to make the seat complete with or without webs; if webs are used, the necessity of stuffing is precluded. A strong rim of hide, stitched to the hide which forms the ~~seat~~, falls into the cavity of the lower tree, thereby forming the case, which may be covered with leather, &c., and secured by lock, strap, or other convenient means.

[Printed, *ad. Drawing.* See Rolls Chapel Reports, 7th Report, p. 189.]

A.D. 1805, May 27.—N^o 2853.

BLUNT, JOHN.—A new safety stirrup. The invention is added to the top of the ordinary stirrup. Two "perpendiculars" rise up from the side bars; they may be made in one piece therewith, or be brazed or otherwise joined thereto. Between them is a locker or box, the inside of which must be wide enough to admit the stirrup leather and the cross-bar from which the stirrup is suspended. The cross-bar works in a groove in one side of the locker, and is fixed therein by a pin or screw; its other end lies in a groove in the opposite side, and it is kept down in a straight line by "a segmental groove full a quarter of an inch deep in its "center" at the top of one of the perpendiculars. One end of a spring catches at the bottom of the cross-bar, the other is secured by the "screw axle," which "must go through both the perpendiculars and also the locker and spring in the inside." The locker is strengthened by a pin or screw "which goes through the sides "of the locker and over the spring." If the rider be thrown from his horse, and his foot become fixed in the stirrup, "the locker "immediately turns on its axle," whereby the cross-bar is instantly thrown out of its groove by the power of the spring under it, and sets the stirrup free from the leather.

[Printed, *ad. Drawing.* See Rolls Chapel Reports, 7th Report, p. 188.]

A.D. 1806, January 23.—N^o 2904.

DAVIES, JOHN DOBBS.—A saddle bar on an improved construction. This bar, which the patentee denominates "the motion saddle bar," is composed of the following parts:—the brace, the swing bar, the shaft, the stirrup bar, the keeper, the counter, the lever, and the receding spring. The patentee thus describes its composition and use:—"My motion saddle bar con-

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“ sists of a clam or brace which swings on a cross-bar, and is fastened to the side of the saddle. This bar is supported by an upright shaft, to the bottom of which is fixed a hollow bar, upon which the stirrup leather is suspended, and being insected, a small lever which acts as a spring is placed in the insection, and has its motion in it. The base of the lever is horizontal, the source of motion is perpendicular, both of which constitute it. The motion produced counteracts that of the horse; and, in case of accident, the immediate object is, that the stirrups clear the lever, and the rider is instantaneously extricated from the danger of being dragged.”

[Printed, 6d. Drawing. See Rolls Chapel Reports, 7th Report, p. 101.]

A.D. 1806, October 30.—N° 2985.

BOWMAN, ROBERT.—“The means of making hats, caps, and bonnets for men and women, of whalebone, harps for harping, or cleaning corn or grain, and also the bottoms of sieves and riddles, and girths for horses, and also cloth for webbing fit for making into hats, caps, &c., and for the backs and seats of chairs, sofas, gigs, and other similar carriages and things, and for the bottoms of beds, and also whalebone reeds for weavers, &c.” The whalebone is made soft and flexible by heat, and, while in that state, is cut into lengths and breadths suitable for the purpose for which it is intended. For hats, &c., it is either worked on blocks of the required shape or plaited like straw or chip. The joinings are made by sewing, or by means of some adhesive cement, or by soldering with parts of itself. If it is to be manufactured into girths, traces, or reins, its pliancy should be increased by immersing it while hot in oil and leaving it there for some days; it is then cut into the proper dimensions (while warm and pliant), or into strips and plaited.

[Printed, 4d. No Drawings. See *Repertory of Arts*, vol. 11 (*second series*), p. 411; Rolls Chapel Reports, 7th Report, p. 103.]

A.D. 1807, July 20.—N° 3062.

HOWDEN, GORDON.—“A girth pannal which most effectually prevents the saddle from getting forward upon any description of horses.” An ordinary pannal is nailed into the saddletree in the usual manner. In the gullet, and immediately over the points of the tree or thereabouts, is fixed the part, on each side of which two pieces of leather or other fit material are secured; each may

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be either a part of the facing of the pannal or a separate piece. A piece of girthing, having girth straps affixed thereto, is passed through these leather pieces and fastened to the pannal, or left loose, so that it can be drawn out; or it may be passed through two slots in the pannal near the upper edges of the leather pieces, " in order that the said girth piece may be more effectually applied to the back of the horse." This girth pannal can be attached to any sort of saddle.

[Printed, *ed.* Drawing.]

A.D. 1809, March 1.—N^o 3212.

SEWARD, ABRAHAM.—"A new or improved hook for bearing up the heads of horses in drawing carriages." This invention " consists in a spring or springs being so fixed to what is commonly called the watering hook of a saddle as to communicate by means of the bearing rein a certain freedom of action to the motion of the horse's head in travelling." The hook moves on a centre in a round plate of brass or other metal screwed or otherwise fixed to the pommel of the saddle. To the hook is riveted or otherwise fastened a circular wire having a worm spring upon it. On the plate is " a ring or flat piece of metal, having a hole through it sufficiently large to admit the circular wire, but not so large as to suffer the spring to pass through it." A lid or cover is attached to the plate: a spiral or other spring may be used; and the hook may be constructed in various forms.

[Printed, *ed.* Drawing. See *Reportory of Arts*, vol. 18 (*second series*), p. 18; *Rolls Chapel Reports*, 7th Report, p. 108.]

A.D. 1810, May 2.—N^o 3329.

HOPKINSON, LUKE.—Improvements in bits for bridles and reins. The cheeks of the bit are each made in two parts attached by screws, rivets, or other fastenings, so as to admit of a backward and forward motion of the parts: this motion is corrected by a spring of circular or other convenient shape. On the lower edge of the upper parts is a notch, which is received upon a cog securely placed on the lower parts and forms a stop to the action of the upper parts. The lower parts are " made straight, but inclining forward at bottom," and the ring, loop, or D, to which the rein is applied, is made to clip the lower part, so as to admit of its traversing freely from the top to the bottom; or it may be fixed to the bottom of the lower part. The curb, which is hooked on to

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the upper parts, must be put on tight, as the above arrangement prevents it from acting suddenly severely. The spring throws the bit into its original position when the rein is slackened.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 7th Report, p. 111.]

A.D. 1811, July 11.—N^o 3464.

BAGNALL, JOSEPH.—An improved method of making rings and hooks for bits and martingals. The patentee claims the invention of making the rings and hooks on the sides or cheeks of bits with an opening or division therein, “guarded and closed “ by moveable levers, slides, pins, catches, rollers, or springs, “ whereby the head’s reins, harness leather, or other work may “ be fastened, put on and taken off ” without buckles or billets, or unstitching the same.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 20 (*second series*), p. 138; Rolls Chapel Reports, 8th Report, p. 86.]

A.D. 1812, February 27.—N^o 3542.

PURDEN, FRANCIS.—“An improved horse boot for the pre-“ servation of sound and the restoration of contracted hoofs.” To keep the hoofs of horses moist when standing in stables on dry litter, the patentee has invented a boot composed of two pieces of leather sewed together, one piece forming the sole. The other piece is vandyked at top to allow of its being drawn tight to the hoof by means of a strap and buckle. Both pieces are lined with sponge.

[Printed, 6d. Drawing. See Rolls Chapel Reports, 8th Report, p. 91.]

A.D. 1812, August 12.—N^o 3595.

GOODMAN, JAMES.—“An improved saddle cloth for preventing “ the saddle from running forward on a horse.” A piece of cloth is sewed to a surcingle or girth; on top of these is sewed a piece of hair or worsted shag or plush. When this improved saddle cloth is buckled on to the horse, and the saddle is put on over it, the rough surface of the shag or plush will keep the saddle in its proper place.

[Printed, 4d. No Drawings. See Rolls Chapel Reports, 8th Report, p. 93.]

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A.D. 1813, March 3.—N^o 3656.

GREEN, RICHARD.—"A stirrup with a spring in the eye, and a "new-invented spring bottom." The two sides of the bottom of the stirrup form a spring which clasps the right leg of the stirrup. This leg, which is let in with a dovetail and secured by a screw-pin, forms a pivot on which the leg is made to open in the upper part near where the eye is attached. The eye also is provided with a spring on the same side as the opening. The leg, from the construction of the spring when acting, will open outside and turn downwards, while a projection at the end of it prevents the spring from acting at an improper time. So long as the rider's foot presses the bottom of the stirrup, no action will take place; but, if he be thrown, his foot will press against one leg of the stirrup; if it press against the left leg, the stirrup leather will be forced against the right side of the eye (where the spring is) and be set free; if against the right leg, the leg itself will fly open.

[Printed, 6d. Drawing. See Register of Arts and Sciences, vol. 2 (*new series*), p. 199; Rolls' Chapel Reports, 8th Report, p. 96.

A.D. 1813, July 3.—N^o 3715.

THOMASON, EDWARD.—"An improved mode of making "whips." The patentee calls his invention "the patent spur "whip." The whalebone or elastic part of the whip is perforated, or has a groove cut down the side of it, sufficient to admit a small steel wire or other rod which is provided with a thumb-piece and a spiral wire. On the top of the whip is a tube fitted with a cap, which moves easily thereon and plays in contracting the spring, thereby forcing the wire farther down. The spring is kept contracted, when required, by the thumb-piece entering a groove cut in the cap. Below the wire is a small pin with a flat head; on or about the middle of the pin is slided or fixed a small wheel with a groove round it, and in the groove are placed the joints of the darts which compose the rowel of a spur. Above the wheel is a tube "with a kind of dish-form mouth," and with holes perforated round it to permit the darts to pass through, when the cap is pressed on the tube; and below the wheel is a similar wheel which fits on, or in, or to the other. A spiral spring round the lower end of the pin assists in keeping the darts tight. The lower tube is in part or wholly plaited over, and the lash part of the whip is attached at a convenient distance.

[Printed 6d. Drawing.]

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A.D. 1814, November 28.—N° 3857.

DICKINSON, ROBERT.—“ Certain improvements in the art of ‘saddlery.’ The object of this invention is to prevent the saddle from slipping forwards, to effect which the patentee employs a saddle-cloth of strong material provided with one or more girths. In or upon the cloth he sews or otherwise fastens one or more flat pieces of metal, having the lower face even, or of such figure as can be placed on the horse without annoying it, and the upper face jagged or studded with points, the jaggs or points inclining towards the horse’s tail at an angle of about 45°. These pieces he calls porcupines. Or he fastens on the cloth one or more hooks, ‘having the concavity of each towards the tail.’ The saddle is placed on the cloth upon the porcupines, or immediately behind the hooks, and may be girthed thereto in various ways. When the shape of the horse requires, the part of the saddle-cloth immediately before the porcupines or hooks is made ‘to project forward so as to bear against the blades.’ He makes some saddles ‘having the hind part of the proper pannel thereof’ and no fore part; and he stuffs the saddle-cloth so as to completely answer the effect of the fore part. Sometimes he stuffs the whole of the saddle pannel, thereby dispensing with a separate saddle-cloth. For an elastic stuffing he uses cork reduced to small fragments like coarse sawdust. With this he fills long bags or flexible pipes, and forms a plate or flat fabric thereof by joining the bags or pipes together side by side, and by quilting through the whole.

[Printed, 4d. No Drawings. See *Repertory of Arts*, vol. 29 (*second series*), p. 80; *Rolls Chapel Reports*, 8th Report, p. 104.]

A.D. 1815, August 23.—N° 3956.

CARPENTER, JAMES.—An improved currycomb. The chief advantages claimed by the patentee are more equal pressure on the teeth of all the bars of the comb and greater convenience in packing for removal from place to place. The handle is “by ‘bending the tine inverted over the back of the comb,’ or raised ‘by cranking the tine.’” In the latter case, the handle is supported on each side by a bearer riveted to the side of the comb. The handle may be raised or depressed at pleasure and, when raised, is kept in its position by two grooved slide stays which are riveted one on each side to the top of the comb.

[Printed, 6d. Drawing. See *Rolls Chapel Reports*, 8th Report, p. 110.]

A.D. 1817, August 5.—N^o 4155.

TAFT, THOMAS.—An improvement in bridle and other reins, in bridle bits, and in leather sliding loops. Seven improvements are claimed by the patentee, five of which refer to reins. The first is the dividing a rein at any distance in the rein, so that there may be two or more reins on each side of the horse's neck, and one only for the hands. The second is making reins sword-proof; this is done by lining them with elastic steel, previously painted or otherwise secured from rust. The third is attaching to the ends of reins a metal slide or slides of any form; the slide has one or more steel springs riveted to the inside; or the spring may be formed out of the same piece as the slide. The fourth consists in making the reins of catgut, covered first with twine plaited like whips (leaving a loop at each end), and then with one or more coats of whipcord; afterwards they are sized with glue size, rolled, washed, rubbed with the ordinary bones or sticks, and varnished; leather is sewed over each end, and the loops are fastened to the leather. The fifth consists in affixing buckles and loops either to the ends of a Pelham bit or Weymouth bits, or to the ends of the reins to be attached thereto, so that the rider or driver can regulate the action upon the curb. The patentee makes his loops in one solid piece; when he has hardened the leather and made it as free from stretch as possible, he punches an aperture therein, and then finishes the loop by proper tools or in a press. Loops may thus be made with several apertures, all in one solid piece of leather. The last-described improvement is connecting the reins (when two are used) to the bit, one above and the other below the mouthpiece, "thus giving an even and easy " pull."

[Printed, &c. Drawing. New Holls Chapel Reports, 8th Report, p. 187.]

A.D. 1818, February 16.—N^o 4227.

SIMPSON, JOHN.—An improved method of making spring hooks or woodcock eyes, which principle of spring is intended also to be applied to harness buckles, ferrits, hooks, and swivels. This invention consists in the method of applying the spring which keeps the moveable part of the hook, &c. in its proper position. The spring is applied to the back part of the joint on which the moveable part turns, and it is lodged within a hollow or cavity in the shank. In the woodcock eye the spring is bent at right

angles, one extremity being made fast in a cavity formed in the shank, the other bearing on a projecting tooth at the back of the joint. The upper part of the cavity is covered with a thin plate, so as to conceal the spring. In the harness buckle, territ, and square hook, the spring (which does not require to be bent) is concealed within the hollow of the adjoining side.

[Printed, 8d. Drawing. See *Repertory of Arts*, vol. 34 (*second series*), p. 263; *Rolls Chapel Reports*, 8th Report, p. 127.]

A.D. 1818, August 31.—N^o 4291.

GREEN, RICHARD.—“An improvement upon the spring billet “for harness.” This spring billet is capable of being constructed in five different ways. In the first, it has a tongue opening inwards, and moveable upon a pin. This tongue is kept upright, or at right angles to the stem of the hook, by means of a spring acting upon its foot which is made flat for that purpose. Between the stem and the spring is a leather strap firmly secured to both by two rivets. In the second, it has a hooked tongue opening outwards, and a recess in the inside of the hook to admit the tongue to lodge in. The tongue is hooked to keep it upright, in case the spring becomes weakened. In the third, the tongue is at the end of the spring and passes through a hole in the back of the hook. Other leather straps may be “firmly stretched” on each side of these three billets. In the fourth, the tongue is fixed at one end of the spring, the other end being rivetted to the stem. A ring or loop is placed at right angles to the stem, and the tongue when in action passes through a hole in the shank of the ring. A leather passes over the ring, another leather through it, thus enclosing the shank of the ring between them; these leathers are stitched together and form a strap. A metal slide slips over a projection on the spring, closes it, and pushes the tongue forward. The strap is passed through the ring to form a loop, and is kept in its position by the tongue being thrust through a hole in it. In the fifth, the billet is so shaped as to admit of the addition of two loops to the stem “for the purpose of admitting “the tug straps from the housing and bellyband.” These spring billets may be applied to “bridle heads and reins, bits, “sword belts, gun slings, and other purposes.”

[Printed, 6d. Drawing. See *Rolls Chapel Reports*, 8th Report, p. 125.]

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A.D. 1818, October 12.—N^o 4297.

FINCH, WILLIAM.—“ Certain improvements on bridles for “ horses, which I denominate the philanthropic bridle.”

The peculiarity of this bridle is that the bit supplies continuous moisture to the horse’s mouth. The bit, of snaffle pattern, is made “ tube fashion,” of any outward form, and of any metal. The metal tubes which contain the liquid are soldered, screwed, or otherwise fastened to the bit. For bits without a joint in the mouth-piece one drop-hole is sufficient; for jointed bits there must be two, one in each joint. For a saddle-horse, the tubes, with or without a covering of leather, are supported by neck or head straps or collars, and “ raised by a neck collar” which lies across the neck. For a coach or draught horse, the tubes are carried by a territ on the collar. The territ is so contrived with rollers as to allow free motion to the horse’s head, and its height is regulated by means of a hollow screw pin which passes through it and is fixed on the “ forewale ” of the collar. To fill the tubes there are caps on the top of each, which screw on and off; a sponge in the lower end of each tube regulates the supply of water to the mouth. “ There “ is also a check-piece or stop-valve in the middle of the tube to “ ease the weight of the liquor, on the tube being filled at “ starting.”

[Printed, 6*d.* Drawing. See *Repertory of Arts*, vol. 35 (*second series*), p. 78; *Rolls Chapel Reports*, 8th Report, p. 128.]

A.D. 1819, January 15.—N^o 4329.

SIMPSON, JOHN.—“ Constructing and making harness on an “ improved principle,” to be called “ release harness.” This invention proposes to effect the release of horses from any carriage in case of accident. To each side of the hames is jointed a draught eye; to the bolt of the eye is riveted or otherwise fastened a rein, by pulling which the bolt can be withdrawn. The back-band and breeching are provided each with a knuckle-joint, the bolt of which is drawn out in the same manner as the eye bolt. The four reins may either remain single, or be united so as to act together. The belly-band also has a knuckle-joint, bolt, and strap which passes between the horse’s fore legs and is affixed to either the collar or hames. On the horse’s moving forwards after release from the rest of the harness the bolt is pulled out. One end of the belly-band may be hooked on to a releasing spring attached to one of the shafts. When the belly-band is pulled

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forward by the action of the horse, the upright arm of the spring gives way and permits the eye or loop to pass over it. The bolt may be made and secured in several ways; three are described. In the first, a spring is rivetted in a groove in the bolt, and the hole in the end of the knuckle is widened to hold the end of the spring. In the second, the bolt is cleft down the middle, and the ends are turned back a little and rounded so as to spring open and lodge themselves in the widened end of the knuckle. In the third, a spring catch is rivetted in a groove in the bolt; the rein is fastened to the head of the catch and passed through a loop or eye in the head of the bolt. The releasing joints may be placed in various parts of the harness. The patentee briefly describes some slight modifications of the spring hooks, for which Letters Patent were granted to him on February 16th, 1818. The modifications consist in changing the situation of the concealed spring "to accommodate it to the altered form of the spring hooks."

[Printed, 1a. Drawing. See Rolls Chapel Reports, 7th Report, p. 121.]

A.D. 1819, September 20.—N° 4396.

DE THIERRY, BARON CHARLES PHILIP.—A "humane safety bit." On the cheeks of a snaffle bit, below the bar or mouth-piece, a second bar slides on sockets. Two separate reins are required, both attached to rings on the ends of the sliding bar; the lower one passes also through rings at the ends of the cheeks, thus forming the curb rein. The curb chain is hooked on at the top of the cheeks. Stops are fixed to the cheeks to limit the sliding motion of the bar. If the bit be intended for harness, "it is strengthened by a bar extended between the two cheeks at the lower ends."

[Printed, 1d. Drawing. See Repertory of Arts, vol. 37 (second series), p. 187; London Journal (Newton's), vol. 1, p. 181.]

A.D. 1820, July 11.—N° 4486.

FLETCHER, SAMUEL.—"An improvement on or addition to saddles, saddle straps, saddle girths, and saddle cloths." This invention consists in an addition to ordinary girths and straps, by the use of which the saddle is more firmly fixed on the horse's back. The girth ends are stitched to a broad double leather strap. On the top of this strap a piece is cut out to admit of two metal stops with a spiral spring between them, the upper stop being rivetted to the strap. To form a case in the strap for the play of

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the spring, two strips of leather are rivetted one at each side of the upper stop, where there are nicks to receive them, and sewed in at the sides of the strap. A narrower leather strap, doubled round the under bar of a metal buckle, passes through an aperture in the upper stop and is secured at its lower end to the lower stop. The component parts of the saddle strap are the same as those of the girth, except that a plain strap is introduced and fastened to the lower stop, and that the apparatus is fixed to the saddle.

[Printed, 10*d.* Drawing. See *Repertory of Arts*, vol. 13 (*second series*), p. 327; *London Journal (Newton's)*, vol. 1, p. 415.]

A.D. 1821, April 5.—N° 4547.

GOODMAN, JAMES.—"An improvement on stirrup irons," which "consists in introducing a cross-bar in an open-bottom "stirrup iron to support a spring or springs" secured to the bar by screws or other fastenings. On the spring is placed a false bottom, the ends of which are let into the sides of the stirrup to keep it in its place and to allow it to rise and fall. At each end of the spring are placed two steel rollers for the false bottom to work on, to prevent friction.

[Printed, 4*d.* No Drawings. See *London Journal (Newton's)*, vol. 2, p. 247.]

A.D. 1821, August 14.—N° 4580.

HIGMAN, WILLIAM HENRY.—"Certain improvements in the "construction of harness." The parts of harness affected by this invention are the hames and tugs. An oval-headed button is welded to each hame, and a loop plate, with an oval aperture in it to slip over the button, is rivetted or otherwise attached to the tug. "The button should stand forward obliquely upon the "hame," at an angle of about 20° to 25° . To confine the action of the button in the loop plate, a key-piece is introduced into the aperture and screwed or rivetted to the plate, thus filling up the aperture, except a round space intended for the action of the button neck. A thin metal washer is placed upon the neck, fitting the shoulder. After the loop plate is attached to the tug, a piece of steel or whalebone five or six inches long is placed between the plate and the outer leather of the tug "for the purpose of giving "it elasticity."

[Printed, 6*d.* Drawing. See *London Journal (Newton's)*, vol. 2, p. 432.]

A.D. 1821, September 8.—N^o 4586.

GORDON, DAVID.—“ Certain improvements in the construction of harness for animals of draft and burthen.” The patentee improves the construction of his harness by applying spiral springs fitted up in metallic or unyielding tubes, to traces, hame-tugs, pole pieces, and breechings, and they may be enclosed or not within the leathers forming those parts of the harness. From the employment of such springs, he expects to facilitate the draught and to prevent sudden checks or jerks.

[Printed, 8d. No Drawings. See *Repertory of Arts*, vol. 1 (*third series*), p. 226; *London Journal (Newton's)*, vol. 3, p. 181.]

A.D. 1823, August 19.—N^o 4835.

DIGGLES, GEORGE.—“ An improved bit for riding horses, and for horses used in single and double harness.” On each cheek of this improved bit are the following pieces:—Near the upper extremity a cap screwed, riveted, or otherwise fastened to it; a flat spiral spring, the upper end of which passes through a hole in a projection on the under side of the cap; a cover for the spring, which either slides up and down in grooves in the edges of the cheek or is screwed to the edges; a swivel attached to the lower end of the spring; a sliding piece screwed to the swivel; and a stop (on a riding bit) to prevent the sliding piece from being drawn down too low; in a harness bit the bar at the bottom acts as a stop. The ring, to which the rein is fastened, is connected to the sliding piece. The curb chain is hooked on in the ordinary place. A bit thus constructed operates either as a common snaffle, or as a powerful curb when occasion requires.

[Printed, 8d. Drawing. See *Repertory of Arts*, vol. 2 (*third series*), p. 351; *London Journal (Newton's)* vol. 7, p. 119; *Register of Arts and Sciences*, vol. 4, p. 308; *Engineers' and Mechanics' Encyclopedia*, vol. 1, p. 168.]

A.D. 1823, September 11.—N^o 4844.

JENNINGS, HENRY CONSTANTINE.—“ An instrument to be affixed to the saddle-tree, by the application and use of which inconvenience and distress to the horse may be avoided.” To carry out this invention, the saddle-tree has on each side, in addition to the stirrup loop, a staple or loop on which springs rest near their inner ends. A groove is made in the springs to receive the loop between them, and their inner ends are lodged underneath the saddle-tree. Each spring is composed of one, two, or

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more pieces riveted together, and their outer ends "may be either " made broader at first, or have additional pieces riveted to them " afterwards," and "these are for the girths to rest upon." The springs should be varnished, partly enclosed within a sheath of hempen webbing, and secured within the broad end of the sweat flap by stitching round it. By means of these springs the girth is prevented from pressing on the horse's sides.

(Printed, &c. Drawing. *New London Journal (Newton's)*, vol. 6, p. 86.)

A.D. 1823, November 13. - No 4864.

GREEN, RICHARD. "Certain improvements in constructing " gambadoes or mud boots, and attaching spurs thereto, and part " of which said improvements are also applicable to other boots." The leather part of the gambado is made as usual, except that the hinder part is about two inches deeper. The stirrup is made entirely open on one side, and on the rounded part at the bottom swings a plate, covered (as well as the whole of the stirrup except the eye) with leather. The plate swings by means of a tube or socket, which receives the rounded part and is prevented from coming off by a screw nut. To the fore part of the plate is fitted a leather slipper, and to the hinder part may be added a leather guard. "To allow of a due play or motion to the foot, and also " to yield, so as to prevent the hanging of the foot in the stirrup " in case of accident," the plate is extended to the heel and connected with a spring concealed there between the double leather of the gambado. The plate may be shortened and a leather sole affixed to the gambado. The plate may be attached to the stirrup by means of a cross-bar moving on pivots. The neck of the spur for gambadoes and heels of boots turns down at the end, and in a groove in the bent part is a catch, the upper end of which enters a spring on the neck. The spring has a sliding cap over it. The spur is fixed by pressing the bent part down into the socket until the catch lodges in a ledge made in the top to retain it. During its descent it has thrust down a plug on a spiral spring; and, when the spur is released by pushing the cap towards the gambado, the spiral spring rises, and the plug fills up the hole at the top of the socket. A notch in the upper side of the plug lodges underneath the ledge, and thereby prevents it from coming out of the socket.

(Printed, &c. Drawing. *New London Journal (Newton's)*, vol. 6, p. 109.)

A.D. 1824, February 28.—N^o 4912.

GREAVES, WILLIAM.—“ Certain improvements on or additions “ to harness, principally applicable to carriages drawn by one “ horse.” On each side of the hames, or at each end of a bar across the saddle, or on two pieces projecting from the sides of the saddle, are eyes through which the reins pass and are thus kept at a suitable distance from the horse’s neck, “ whereby greater “ command is obtained in the management of a horse than by “ the common method.” An extra rein, fastened to the bit or nose strap, passes through a ring or loop over the horse’s head, through a ring on the saddle, and is secured to a hook on the splash-board; this enables the driver to raise the horse’s head, should he prove restive or attempt to rear or kick. There is also given the drawing of “ a box that the axle of the wheel is to run “ in, which may be applied to the axletree of a water wheel to “ give an increase of the power. Any convenient shape may be “ employed.”

[Printed, 6d. Drawing. See London Journal (*Newton’s*), vol. 7, p. 291.]

A.D. 1824, May 20.—N^o 4961.

MARSH, THOMAS.—“ An improvement in the art of making “ saddles.” For the canvas and padding usually employed to give elasticity to the seat of a saddle, the patentee substitutes a series of spiral springs of brass or other metal fastened to the edges of four pieces of web, leather, or canvas, two at each end of the series. The springs and webs are stretched lengthways and nailed to the head of the saddle-tree and screwed to the cantle. To prevent the springs from overstretching, a double canvas, one above and one below, is “ quilted ” across them, drawn down, and sewed to the sides of the tree. The seat being thus prepared, the saddle is finished in the usual manner.

[Printed, 6d. Drawing. See London Journal (*Newton’s*), vol. 9, p. 401; Register of Arts and Sciences, vol. 3, p. 13.]

A.D. 1824, December 4.—N^o 5049.

WYCHERLEY, GEORGE.—“ Certain new and improved methods “ of making and constructing saddles and side saddles.” The improvement in saddles for men consists in an additional stuffed or padded fore part made of the same materials as the ordinary pannal, and joined thereto in such a manner that it can be brought

down upon the back part of a horse's withers by passing straps (fixed to it on the under side) through holes in the pannel; the straps are then buckled to a girth. By such an addition the saddle will remain steady upon the horse's back without the aid of a crupper. In side saddles, two straps are secured to the saddle-tree on the off side, one to the fore and one to the hind part; they unite in a ring to which a third strap is stitched. The third strap is passed through a square (with a roller on it) affixed to the ordinary girth; it is then turned up and buckled to a fourth strap, which passes across the horse's back, through a channel riveted to the tree and provided with two friction rollers (or one roller and a spring on each side), to the near side, where it has the stirrup attached to it. The pressure of the foot on the stirrup pulls the girth tight and keeps the saddle firm and upright. The first improvement is applicable to side saddles also.

[Printed, 16*d.* Drawing. See London Journal (*Newton's*), vol. 11, p. 352.]

A.D. 1825, April 2.—N^o 5147.

TURNER, WILLIAM, and MOSEDALE, WILLIAM.—“An improvement on collars for draught horses.” This improvement consists “in bringing the internal part of the leather which “contains the stuffing on the inside of the collar over the front “of the wale, the objects of which are to give stability to the “hinder part of the collar, by means of tension, which prevents “it from bending backward away from the shoulder of the horse “in using, and also to afford elasticity and softness to all those “parts of the collar which come in contact with the horse's “neck.” The patentees do not confine themselves to materials of which the collars may be made, the invention consisting in the mode of construction, namely, “bringing the stuffing round on “the inside of the collar in front of the wale, so as to “cover it.”

[Printed, 6*d.* Drawing. See London Journal (*Newton's*), vol. 10, p. 190.]

A.D. 1825, June 28.—N^o 5199.

TOMPSON, GEORGE.—“An improvement in the construction “of riding saddles.” The saddletree is made of steel or iron; the parts of which it is composed are a main head, a back head, two fore stays, two main bars, two side bars, two back stays, and

a cantle. The metal used is in the form of a round rod, except for the cantle which is of sheet steel or iron. The main head is bent as a bow; the back head extends from fore stay to fore stay; the fore stays unite the heads to the main bars; these join the main head to the cantle; the side bars reach from the extremities of the main head to the middle of the main bars; the back stays help to support the cantle by joining it to the main bars. In the cantle is a hole into which a staple for a crupper is inserted, and on the inside are two staples for affixing the hinder ends of the long webs. The saddle belly on each side is composed of an under leather, three or four strips of steel, a piece of cork or other substance capable of being stitched through, and an upper leather; these are all sewed together and to the webbing. The pannal frame has at its edge all round a sheet steel plate with holes and nicks in it. In the front of the plate are sockets into which the projecting ends of the side bars are inserted; in the back are blades (working on hinges), which slip into sockets on the cantle and are held there by screws. A strap attached on each side to the upper part of the front of the pannal, and passing "through the fore-piece and round the bar of the main head, is "to be buckled to the buckle under the skirt of the saddle." The Specification contains minute particulars of the preferable dimensions, rivetting, brazing, &c. of the metal parts, of the straining, cross straining, and fixing of the webs, and of the stuffing, lining, covering, &c. of the pannal and other parts of the saddle; but as the patentee claims only the invention of a saddle-tree made of steel or iron, and of a pannal to be affixed thereto, it is thought unnecessary to detail them here.

[Printed, 1s. 8d. Drawings. See London Journal (*Newton's*), vol. 13, p. 321.]

A.D. 1825, July 16.—N^o 5216.

COOK, THOMAS.—An apparatus to be attached to carriages for the purpose of stopping the horse or horses upon an emergency. A toothed bevil wheel is affixed to the nave of a carriage wheel by means of ears, which are let into the nave under the loop and secured by screws. The toothed wheel works into a bevil pinion which turns upon a crank axis, the pivots acting in holes made in bosses fixed in the inside of a metal box. This box is fastened to the axletree by screw-bolts and nuts; it may be let into the axletree bed; one side of the box is moveable. Inside are, 1. two

ratchet wheels on an axis, the pivots of which act as those of the pinion axis; 2. a crank rod, having at one end half holes to fit upon the neck of the crank axis, and at the other a mortise which lodges on the top of one ratchet and turns it one tooth at each revolution of the crank; 3. a hooked lever catching in the teeth of the other ratchet and detaining it at each revolution (a spring pressing on this lever keeps it to its work); and 4. a second hooked lever turning upon the ratchet axis and keeping the crank rod raised; the other end of this lever, passing through a mortise in the end of the box, has attached to it a ball or weight furnished with an eye or loop, to which a strap or chain is fastened. Through the ratchet axis is made a mortise, through which a strap or chain is passed and secured by a screw; the other end of the strap passes out through a hole in the end of the box, and, provided with branches, is connected with the bits in the horse's mouth by hooks, billets, &c. On the axletree bed is a bell-crank, from which a wire proceeds to the nearer end of the first hooked lever, as well as a line which is hung up at the driver's seat. The first strap also is hung to the seat; it is furnished with a spiral spring to prevent its breaking by any sudden jerk. By pulling this strap the apparatus is set in motion. The other strap is wound round the ratchet axis, and the horses' heads are drawn in more and more at each step. A stop on the strap encounters the crank rod and lifts it out of contact with its ratchet, thus preventing the horses from being pulled in too much. To relieve the horses the driver pulls the line attached to the bell-crank. There are several modifications of this invention, all having the same object, namely, to cause horses to aid in stopping themselves by the winding of the strap. The invention, with certain modifications, is applicable to gigs.

[Printed, 1s. 4d. Drawings. See *Repertory of Arts*, vol. 2 (*third series*), p. 226; *London Journal (Newton's)*, vol. 12, p. 8; *Register of Arts and Sciences*, vol. 4, p. 22; also vol. 2 (*new series*), p. 215.]

A.D. 1825, July 16.—N° 5220.

MUSSELWHITE, THOMAS.—“Certain improvements in the manufacture or construction of collars for horses and other animals;” also an apparatus for taking the measure of a horse's neck. The advantages of this collar are general stability of structure, softness at the bearing points, and joints at the top, so that it can be put on without passing over the horse's head. The

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frame is of iron ; it consists of a strong rib extending round the collar and having eyes at the top for straps to pass through. An iron rod is placed in front of the rib, and connected to it at the bottom (where there is an enlargement) by a bent pin to which it is rivetted. The top ends of this rod are fastened together by a pin and turn-button or by other means. A strip of leather, "in which a cane is sewed for the purpose of forming the projecting part in front of the collar which confines the harness hames," is wrapt round the rod, so that the cane may be on the front side, and stitched together. To this are sewed the wale leather and the barge leather. The padding, enclosing a piece of cork on each side (to afford elasticity when pressed against the horse's shoulder) is then applied, and the collar is completed in the usual manner. The apparatus mentioned in the title "consists of several curved pieces of iron or brass graduated into inches upon their faces, which pieces slide through staples, and have finger screws to fix them." In taking the measure of a horse's neck these pieces are slid until the edges of the staples stand at corresponding marks ; they are then screwed tight, and the dimensions are taken.

[Printed, &c. Drawing. See *Repertory of Arts*, vol. 3 (*third series*), p. 177 ; *London Journal (Newton's)*, vol. 10, p. 251.]

A.D. 1826, July 4.—N° 5382.

FREEMAN, DANIEL.—"Improvements in measuring for and making collars for horses and other cattle." To take the shape of a horse's neck the patentee has invented a frame of wood or other suitable substance, bent in a proper form to go over the neck, opening with a hinge, and pierced from one end to the other with holes about three inches apart. These holes are "bushed with cork," and metal pins are put through them in a direction perpendicular to the neck. By drawing these pins out or in, as occasion may require, any person is enabled "to take the shape of the animal's neck with accuracy." The frames, "for their more convenient portability, are some of them made with a joint in the middle of each side;" when in use they are made firm by a catch or hasp on the sides. The collar is made as follows :—A frame of any suitable material is shaped to fit the horse's neck and shoulders. To the frame are rivetted, on one or both sides, metal plates, and at proper distances from the extremities are inserted and rivetted two metal sockets, one on each

side, for the reception of two iron bolts. The bolts are screwed in and terminate externally with a metal ring, D, square, &c., to which the tugs are fastened. For pair or four harness two other sockets are required with bolts, &c. for the pole straps to pass through. "For convenience of shifting" from off to near side two extra sockets are inserted, and the spare one is filled by a headed screw. At a proper distance above the middle sockets are two more with similar bolts, &c. for receiving the reins. By this arrangement the harness and forewale are dispensed with; they can, however, be added if required. The frame is formed in two parts, made to open by a hinge at the top or bottom, the top is preferable; the other end of the parts is secured by a hinge or staple. "These hinges at top and bottom may be made to slide" in staples or grooves to lengthen and widen the collar; they are secured by pins, screws, or like fastenings. The stuffing or padding of the collar is to be strips of woollen cloth or blanketing.

[Printed, &c. No Drawings. See *Repertory of Arts*, vol. 5 (*third series*), p. 274; *London Journal* (*Newton's*) vol. 1 (*second series*), p. 80; *Register of Arts and Manufactures*, vol. 8 (*new series*), p. 74.]

A.D. 1827, August 1.—N^o 5532.

- **LUKIN, LIONEL.**—(Partly a communication.)—“Certain improvements in the manufacture of collars for draught and carriage horses, and saddles for draught, carriage, and saddle horses.” In collars and saddles constructed according to this invention, the parts which press against the shoulders or the back move independently of the other parts. The collar is composed of a metal bow at top; two rings for the reins to pass through; two rings or studs to which the ends of the neck strap are fastened; two pads “worked on to and moving backwards and forwards partly round the bow;” two tug eyes protruding through the pads; and two rings or chains for the breast strap. The pads are made each on one or more pieces of wood; the tug eye passes through a slot in the wood, and the length of the slot determines the play of the pads. There are various slight modifications of the fastenings and the methods of fastening, and the bow may be made at the bottom of the collar. The harness saddle or pad is made in two parts connected by a bar or bridge. Near the connecting points the bridge has a joint “which allows “the pad to assume any angle suited to the shape of the horse's

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“ back.” The tree of the riding saddle is mounted on two pieces of board; they have a groove cut in them to receive the sides of the tree, to which they are joined by straps; these straps constitute a sort of hinge, enabling the boards to turn and adjust themselves to the horse’s back.

[Printed, 8d. Drawing. See *London Journal (Newton’s)*, vol. 3 (second series), p. 304; *Register of Arts and Sciences*, vol. 2 (new series), pp. 224, 232, 247; *Engineers’ and Mechanics’ Encyclopædia*, vol. 1, p. 386.]

A.D. 1827, September 6.—Nº 5549.

FORD, WILLIAM JOHN.—“ Certain improvements in the make, “ use, and application of bridle bits.” The bit is made in two parts; the sides of the upper part are connected by a straight bar and attached to the headstall. The sides of the lower part, which are also connected by a straight bar, are joined to those of the upper part by mortises and pins in such a manner that the lower part may move from a straight line through an angle of 45°. The lower bar has a port on its under side, and on its upper side two small rings which come outside the lower jaw of the horse. To these rings are attached small circular bars with rings at their outer ends. To the last-named rings the riding or driving rein is fastened, and a second rein, which the patentee calls “ the cor-“ rection rein,” is fastened to rings at the extremities of the lower part. A bearing rein for a carriage horse is attached to the same holes as the curb chain, which are at the lower extremities of the upper part. By pulling the correction rein and so moving the lower part from a straight line to an angle, the port will be so strongly pressed on the lower jaw that the horse will be immediately restrained. The upper bar may be left out, and the circular bars be attached to the lower bar by studs or rivets. The patentee states the following plan for making a horse tractable, if he is very vicious, or will not undergo the operation of shoeing:—“ Let the tongue be raised and the double bar bit be placed on “ the lower jaw, which it will easily fit; at the same time let the “ curb chain be loose. Then pass a small thin strap through the “ two links to which the curb chain is attached, and buckle it so “ tight that the horse cannot put his tongue between the bit and “ his under jaw.” A firm pull of the correction rein will then have great effect.

[Printed, 6d. Drawing. See *London Journal (Newton’s)*, vol. 6 (second series), p. 333.]

A.D. 1827, November 6.—N° 5558.

WEISS, FREDERICK FOVEAUX.—“Certain improvements in the “construction of spurs.” The socket which is let into the heel of a boot or shoe has a piece of steel of the form of an arc or other suitable shape brazed or otherwise attached at its orifice. It contains a spiral spring and a hollow cylinder closed at the outer end, part of which is filed away, so that the remainder may come flush with the arc, thereby filling up the orifice. The flat part of the spur which enters the socket has a notch in it, and, when the flat part is pushed in, the spur is turned half round and secured by the arc and the pressure of the spring. In the cylinder is a slot for the reception of a guide which keeps the cylinder from moving in a wrong direction. A spring catch may be substituted for the notch. If “forks” be attached to the spur, “a “groove is cut extending from the under to the upper surface of “the spur on one side only,” and a screw “has its lower end “inserted into the groove to prevent the spur from making more “than the intended semi-revolution.”

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 3 (second series), p. 48.]

A.D. 1828, February 21.—N° 5619.

OTWAY, THOMAS.—“An expedient for stopping horses when “running away with riders or in carriages.” The horse is stopped by means of an apparatus which impedes his breathing. On each side of the noseband, opposite the nostrils, a piece of leather is cut out. In each aperture is fixed a plated metal box, which contains an iron lever padded with leather on the part which is to press the nostril, a spring acting against the lever tail, and a rod connected by means of a pin to the lever towards the tail; the rod slides through a hole in the end of the box, and has at its outer end a staple or ring to which the safety rein is fastened. The rods, being drawn out by pulling the rein, cause the levers to project, pinch the nose, and press the pads against the air passages. The springs force the levers back again when the rein is relaxed.

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 9 (third series), p. 8; London Journal (*Newton's*), vol. 1 (second series), p. 216; *Bolls Chapel Reports*, 7th Report, p. 126.]

A.D. 1828, June 17.—N° 5666. (* *)

BARTLETT, JOHN.—Preparing flax, thread, or yarn for use in the manufacture of boots, shoes, saddlery, and of sail and other

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cloths. The nature of this invention "consists in the application " of the tanning principle to the flax, thread, or yarn, so that the " said flax, thread, or yarn, having imbibed the tanning principle, " is rendered more durable and less liable to rot or decay by " exposure to alternate wet and dry.

" The method I adopt for applying the tanning principle is by " steeping or boiling the flax, thread, or yarn in a decoction or " infusion of oak bark, or other substance which contains the " real tanning principle; the flax, thread, or yarn being then " properly dried, and becomes fit for use. If the infusion or " decoction is prepared of adequate strength, one steeping or " boiling the flax, thread, or yarn will be sufficient, otherwise the " operation must be repeated, drying the flax, thread, or yarn " each time."

[Printed, 4d. No Drawings. See *Repertory of Arts*, vol. 8 (*third series*), p. 479; *London Journal (Newton's)*, vol. 6 (*second series*), p. 94.]

A.D. 1828, August 13.—N° 5684.

MAXWELL, HENRY.—"Invention or improvement in spring " spur sockets." The patentee substitutes for the moveable plug a valve or door for the purpose of closing the orifice of a spur socket. The valve moves upon a pin fixed in the sides of the socket, and is kept shut by the action of a spring upon the inner side of it. The valve yields to admit the neck of the spur, and closes when it is withdrawn.

[Printed, 6d. Drawing. See *London Journal (Newton's)* vol. 7 (*second series*), p. 31.]

A.D. 1828, December 15.—N° 5734.

LLANOS, VALENTINE.—(*A communication.*)—"An improvement or improvements on bits." The patentee claims three inventions:—An improved shape of the mouth and port for protecting both the tongue and palate from injury; the combining the mouth piece with the branches of the cheek, that there may be a limited rotary motion between them; and the applying a joint to the lower portion of a branch, so that a horse may be conveniently fed without releasing the bit from his mouth. The port is made in one piece with the canons and turns upwards. Each cheek consists of two parts or branches. Near the external end of each canon "a short cylindrical axis is formed, which enters a cylindrical hole made to fit it;" each

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branch turns on this axis, but in order to limit the motion to about 90° a recess is cut in the end of each canon, and a fixed pin is rivetted in a cavity formed in each branch; this pin enters the recess and limits the motion of the branches. The lower branch is composed of two parts, which are united by a "rule joint;" on the inside of the upper part is screwed a steel spring, and a short pin at the lower end of the spring enters one of two holes in the joint, thereby keeping the parts stationary, whether folded or extended. The curb hooks are of such a length that the bottom of each reaches to the centre or fulcrum on which the branches turn.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 9 (second series), p. 102.]

A.D. 1829, January 17.—N° 5759.

TAFT, WILLIAM.—"Certain improvements in or additions to " harness and saddlery, part of which improvements or additions " are applicable to other purposes."

[No Specification enrolled. See Mechanics' Magazine, vol. 12, p. 345.]

A.D. 1829, July 8.—N° 5814.

LEESON, WILLIAM.—(*A communication from William Taft.*)— " Certain improvements in or additions to harness and saddlery, " part or parts of which improvements or additions are appli- " cable to other purposes." This invention consists of a "spring " stop hook" by means of which various parts of harness and saddlery may be connected or detached with ease and despatch. The hook is composed of a metal frame; a curved head; a stop which slides in a dovetail groove in the frame, and which is pushed up or down by means of a knob; and a catch pressed upward by a spring and supported at the lower end by a pin which serves as a fulcrum. The stop may be formed of a ferrule or cylinder which slides over the catch. This hook can be applied to a "circular shaft-tug," by making the tug in two parts jointed together, the lower part being rivetted to the frame, and the upper part furnished with a projecting piece which is acted upon by the catch. The upper end of the frame is united by a buckle and strap to the saddle, and at the bottom of the tug is a ring or loop through which the back band strap is to pass.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 9 (second series), p. 170; Mechanics' Magazine, vol. 12, p. 345; Register of Arts and Sciences, vol. 4 (new series), p. 199.]

A.D. 1830, March 20.—N° 5922. (* *)

ROTCHE, BENJAMIN.—“Improved guards or protections for horses’ legs and feet under certain circumstances.”

The “guards or protections” referred to consist of “shoes,” “boots,” “knee caps,” and “rings,” made of caoutchouc or india-rubber, to be applied to horses. The patentee’s mode of producing the required article is as follows:—“I procure bottles of indian rubber, as usually sold in the trade, taking care to choose the largest that can be procured of an even thickness, and having steeped them in hot water just under the boiling point for about five or ten minutes (and cut the necks and bottoms off, if desired), I stretch them on moulds (made of wood in preference) to the shape I require for the purposes aforesaid, and then let them cool, when they will preserve the shape required.” Rings cut out of a caoutchouc bottle may be “applied to the leg above and below the hock to keep on a poultice; and these rings may be applied as bandages to protect wounds in various ways.” Such articles so made may, from their elasticity, be drawn over the foot and leg, or they may be strapped or buckled on.

By Disclaimer dated A.D. 1835, November 10th, the patentee disclaims that part of the title to the above invention included by the words “and feet,” and disclaims that part of his invention relating to the application “of caoutchouc to the protection of horses’ feet,” on the ground of “practical difficulties;” as also that part of the Specification referring to the application of caoutchouc elastic rings “for keeping other bandages over wounds on horses’ legs,” the same having been previously applied by surgeons and others to the human frame.

[Printed, 6d. Drawing. *Repertory of Arts*, vol. 11 (*third series*), p. 205; *London Journal (Newton’s)*, vol. 7 (*second series*), p. 326; and vol. 21 (*combined series*), p. 474. For Disclaimer, see *Mechanics’ Magazine*, vol. 15, p. 246; *Register of Arts and Sciences*, vol. 6 (*new series*), p. 39; *Engineers’ and Mechanics’ Encyclopedia*, vol. 1, p. 710.]

A.D. 1830, July 6.—N° 5953.

SURMAN, JOHN.—“Certain improvements on bits for horses and other animals.” Two improvements in bits are described, the one, the substitution of a new curb for the ordinary one; the other, the making revolving mouth pieces. The new curb is either a solid piece of metal jointed to the cheeks, and having at

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its ends stops "which coming in contact with the edges of the "cheeks limit its motion upwards or downwards," or a chain having at each end a box which contains a metal rod acting upon a spiral spring coiled round it; this spring curb is jointed to the cheeks of the bit. The revolving mouth pieces are of various shapes and made with two, three, or four branches; the ends turn on pivots in circular holes in the cheeks. These mouth pieces may be formed with hollow sockets at their ends, and be made to revolve upon fixed bars united to the cheeks.

[Printed, 1s. 2d. Drawings. See London Journal (*Newton's*), vol. 8 (*conjoined series*), p. 304; Register of Arts and Sciences, vol. 5 (*new series*), p. 185.

A.D. 1830, August 10.—N^o 5980.

LAWRENCE, JOHN, and RUDDER, WILLIAM.—"An improvement in saddles and girths, by an apparatus affixed to either of them." The patentees claim as their invention the construction of a series of springs, of any form and arrangement, within a metal case, which act on a drawing plate, the whole being attached at its upper end to the saddle, and at its lower end to the girth or girths. Three modifications are given. In the first, a series of bow springs, on what is called the "grasshopper principle," is placed horizontally in a metal case. On the under side of these springs are notches fitting on to two fixed vertical bars, for the purpose of keeping them in their proper position. A sliding draw bar, placed at the back of the upper bow, is screwed or rivetted to a drawing plate, to the other end of which are affixed loops or staples (each having a roller) for the attachment of the girths. In the second, there is a series of angular or L springs. Two pieces of metal confine the springs and form the fulcrum against which they act. A bar unites the end of the upper spring to a lever, the hooked end of which is connected to a swivel on the drawing plate. In the third, there is a series of curved springs confined by a fulcrum. A lever, parallel with the top of the case, bears against the upper end of the outer spring. A bar unites one end of this lever to the hooked lever, &c., as before stated. In the second and third modifications, the drawing plate slides in vertical grooves rivetted to the case.

[Printed, 6d. Drawing. See Repertory of Arts, vol. 11 (*third series*), p. 278; London Journal (*Newton's*), vol. 8 (*second series*), p. 818; Mechanics' Magazine, vol. 18, p. 99; Register of Arts and Sciences, vol. 6, (*new series*), p. 4; Engineers' and Mechanics' Encyclopedia, vol. 2, p. 617; Rolls Chapel Reports, 7th Report, p. 188.]

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A.D. 1830, September 7.—N^o 5993.

THATCHER, THOMAS. — “An elastic self-adapting saddle.” This saddle is constructed with elastic ends or points, “which “enables the saddle to give way to pressure, and to adapt itself “to the backs of different sized horses.” The points, of steel or whalebone or some other elastic material, are riveted or otherwise fastened to the bearings of the saddletree, and their ends are inserted into pockets, one on each side of the pannal. The hinder part of the pannal is fastened to the tree in the usual way, but the front is detached and connected only by two straps, one on each side, which pass through loops on the under side of the tree, and are secured by buckles. The pannal is stuffed at the parts over the withers, as well as at the sides.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 7 (second series), p. 17; Register of Arts and Sciences, vol. 6 (new series), p. 33.]

A.D. 1830, October 20.—N^o 6017.

CLARKE, SAMUEL. — “Certain improvements in making or pre-“paring saddle lining, saddle cloth, and girths, for keeping “saddles in place on horses and other animals of burden.” These improvements consist in introducing into the cloth from which the lining, &c. is made, ribs, which, when applied to the animal's back, imprint “grooves or ribs in the hair or skin of some-“what a banded or armadillo-like appearance. Each rib has thus “an obstacle to surmount, which tends to prevent its sliding.” The method adopted is to remove from a flannel girth, web, or or other suitable loom one or more “of the reeds, canes, or splits “in the lay slay,” so as to admit “certain large yarns or chords “to pass freely through to form the ribs.” The patentee describes the details of manufacturing, but adds that his improvements are not “in the machinery or means used but in the ribs of whatever “materials composed.” He claims also the right of adding the ribs to such articles as are fabricated without them.

[Printed, 4d. No Drawings. See Repertory of Arts, vol. 16 (third series), p. 344; London Journal (*Newton's*), vol. 1 (conjoined series), p. 411; Register of Arts and Sciences, vol. 6 (new series), p. 75.]

A.D. 1830, October 26.—N^o 6021.

CALVERT, HENRY. — “An improvement in the mode of making “saddles, so as to avoid the danger and inconvenience occasioned “by their slipping forward.” In making up this improved saddle,

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" and before it is what is technically called drawn up," a spring or elastic plate is fixed to the end of each saddle-tree point, " projecting in a curved line, a little before the tree point," and descending below it; to this the forward girth is drawn up. The spring " should incline in a slight curve inwards towards the horse, so as " to cause a slight pressure under it."

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 11 (*Third series*), p. 24; *London Journal (Newton's)*, vol. 5 (*conjoined series*), p. 160; *Register of Arts and Sciences*, vol. 5 (*new series*), p. 237; also vol. 6, p. 18; *Engineers' and Mechanics' Encyclopedia*, vol. 2, p. 616.]

A.D. 1831, February 21.—N^o 6087.

PHILLIPS, JOHN.—" Certain improvements on bridles." These improvements are designed to effectually curb and govern a restive horse. The bridle is an ordinary snaffle. A pulley is attached on each side of the headstall near the horse's ears, and a similar pulley to the rings of the bit on each side of the mouth. To each of the lower pulleys is connected by means of a staple a flat strap, from which a round strap passes over the upper and under the lower pulley. To the extremities of the round straps the safety rein is buckled. If the horse has to be led, a pulley with two extra rollers is substituted for the lower pulley, and thus the groom is enabled to exert the same leverage upon the bit as the rider or driver is by the former arrangement.

[Printed, 6d. Drawing. See *London Journal (Newton's)*; vol. 7 (*second series*), p. 312; *Register of Arts and Sciences*, vol. 6 (*new series*), p. 105; *Rolls Chapel Reports*, 7th Report, p. 135.]

A.D. 1831, March 29.—N^o 6100.

COLEMAN, THOMAS.—" An improved roller for horses." This invention aims at giving elasticity to the rollers employed to keep horse clothing in its place. The middle of the roller is a " stout " leather enclosure," upon which are sewed middle, side, and end pieces; between the grooves thus formed are placed four flat spiral springs (two on each side of the enclosure) end to end, through which leather straps pass and are secured at the inner end thereof. The webbing is stitched to the straps on one side, and buckled to those on the other side.

[Printed, 10d. Drawing. See *Repertory of Arts*, vol. 13 (*third series*), p. 18; *London Journal (Newton's)*, vol. 7 (*conjoined series*), p. 85; *Register of Arts and Sciences*, vol. 6 (*new series*), p. 235.]

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A.D. 1832, June 5.—N^o 6272.

TAYLOR, JOSEPH ALEXANDER.—“An improved whip, stick, “ or cane to be used when riding.” This invention consists in the addition of a long tuft or tassel of hair to the handles of whips, sticks, or canes “for the purpose of enabling the rider to relieve “ the animal he is riding from the annoyance of flies.” A tuft of horsehair is fastened by cement into a tube which slides freely in a larger tube, but is prevented from dropping out by a screw ring or collet. A string is tied to a small wire eye (the shank of which is forced into the cement), carried up the larger tube, and passed outside between two friction rollers. The whip-stock is inserted into the upper end of the larger tube, and the whole is braided and ornamented as usual, leaving only an opening between the thumb buttons at the rollers for the string to pull through. There may be various modifications of arrangement of the several parts.

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 14 (*third series*), p. 199; *London Journal (Newton's)*, vol. 1 (*conjoined series*), p. 356; *Register of Arts and Sciences*, vol. 7 (*new series*), p. 261.]

A.D. 1832, August 22.—N^o 6298.

JOYCE, WILLIAM.—“Certain improvements in the making or “ constructing of collars for horses and other animals.” The patentee claims the invention of a collar capable of adjusting itself more accurately to the shape of horses’ shoulders and necks. In this collar “stout flexible, yielding, or pliable leather “ braces,” or “pliable braces formed of any other fit and proper “ flexible or yielding materials,” are substituted for the ordinary stiff hames. The main brace “is made of two thicknesses of stout “ leather stitched together and partly divided on each side, so as “ to form two distinct parts;” one of the divided parts, together with the undivided part, when made fast by strong stitching to the top and bottom parts of the body of the collar, supersedes the common hames, the other “being intended to bear the stress from “ the pole;” but it should be united, when a pole is not used. Full details are given of the stitching, stuffing, &c., and of the affixing the links, rings, and territs. In order to make this collar capable of fitting horses of different sizes, the upper ends are not made entire, but are connected by a shifting top by means of buckles and straps. In order to afford free space for the gullet of a horse which protrudes more than usual, a curved piece of iron

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is introduced at the throat of the collar within the forewale, which is then bent along it and covered over with a strip of leather.

[Printed, 1s. 2d. Drawings. See *Reportory of Arts*, vol. 15 (*third series*), p. 197; *London Journal (Newton's)*, vol. 2 (*conjoined series*), p. 230.]

A.D. 1834, April 22.—N° 6597.

SEGUNDO, JUAN JOSE.—“An apparatus or method applicable to side saddles, for giving security to persons when riding.” The patentee describes the nature of his “invention, and the manner in which the same is to be performed, to consist in a stirrup apparatus or machine for supporting the right foot of the person riding, and in placing, affixing, or attaching the same stirrup apparatus or machine to or upon the side saddle, or to or on the near side of the horse.”

[Printed, 4d. No Drawings. See *London Journal (Newton's)*, vol. 11 (*conjoined series*), p. 334.]

A.D. 1834, June 5.—N° 6622.

GRENFELL, GEORGE SAINT LEGER.—“Certain improvements in the construction of saddles.” The chief difference between the patentee’s saddles and those in common use lies in placing the under surface of the frame or tree directly on the horse’s back, without interposing any padding or cloths. The tree is made as follows:—The pointa are rounded off and present a convex surface to the horse’s shoulders; they also gradually increase in breadth towards the pommel and are slightly hollowed out to adapt them to the rider’s thigh. The pommel must fit as closely as possible to the shoulders without touching the withers. The bars of the tree must be convex on their inner surface and rounded off at the edges, so as to press equally in their whole line upon the dorsal muscle without coming in contact with the back bone; they are narrowest in the middle, and widen gradually towards the crupper.

[Printed, 4d. No Drawings. See *London Journal (Newton's)*, vol. 11 (*conjoined series*), p. 376; *Rolls Chapel Reports*, 7th Report, p. 151.]

A.D. 1834, October 22.—N° 6700.

BOWER, MANOAH, and BLYTH, GEORGE.—“Certain improvements on or additions to saddles for horses.” The addition consists of a curtain or cover, which “is made of waterproof

“ leather or other suitable material, and is bent into folds in such a manner that when drawn into the saddle it will lie closely within the same and be entirely hid from view.” In each fold is a bent wire protruding through the leather and forming a loop for the passage of straps which are fastened to the outer end of the cover. On this outer end is a thin metal frame to which are attached straps for drawing out the cover. The frame of the saddle (for harness) is of metal and so contrived that it admits the cover within it. On the frame are two rollers, over which the first-mentioned straps pass and then return and are made fast to the splashing board or other convenient place; by pulling these straps the cover is drawn into the frame; by pulling the others, it is drawn out over the horse’s loins. In a riding saddle the cover is fixed in a cavity formed for it in the fore part of the saddletree; when drawn out, it covers the saddle and horse’s loins when the rider is dismounted; when he is in the saddle, it protects his thighs and stomach. When the cover is not in use, it is rolled up and kept in its recess by buckles and straps.

[Printed, 10d. Drawing. See London Journal (*Newton’s*), vol. 12 (*conjoined series*), p. 19.]

A.D. 1836, May 7.—N° 7086.

TAYLOR, THOMAS.—“ Certain improvements in saddles for riding.” Two inventions are here claimed; the application of air-tight bags as a substitute for the ordinary elastic stuffing of saddle seats and flaps, and a method of fixing the fore part of the pannel to the saddletree in place of nailing it thereto. The air bag for the seat is made either in two distinct portions, one on each side, or in one portion separated by a space in the middle. To prevent too great a distension, each portion is divided into compartments; each portion is filled or emptied by the usual air-way. Each flap also is provided with an air bag of suitable shape; when the air bags are placed in their proper position, they are covered with leather, and the saddle is completed in the customary way. The pannel is attached by means of screws passing through the upper part of the front of the saddle and entering nuts or plates in the pannel; it is affixed at the back by plates, which move on a hinge and pass under the covering of the saddletree where there are openings cut for the purpose. The plates are made fast to the tree by screws.

[Printed, 6d. Drawing. See London Journal (*Newton’s*), vol. 12 (*conjoined series*), p. 15.]

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A.D. 1836, May 9.—N° 7087.

HEBERT, LUKE.—(*A communication.*)—“ Improvements in horse “ collars.” The collar is provided with means of being extended or contracted either in length or breadth, so as to fit the necks and chests of horses of different size. It is composed of a wooden bow, padded in the usual manner, and having a sliding joint at bottom for altering the width and a hinge at top for opening and closing ; and of a band of iron “ which may be sunken flush into the wood, to which “ it is either screwed or riveted.” On either side of the band are a lengthening piece, a plate pierced with holes, a loop through which the plate passes when the collar is altered lengthways, and a plate through which passes a stopping screw, the extremity of which enters the hole in use in the plate. If the harness rings near the upper end of the collar be formed with a screw at their end, the stopping screws can be dispensed with “ by turning the “ iron work in such a manner that the plate will slide into the “ upper instead of the lower part of the collar.” On the upper part is a sliding cover for the top when the collar is lengthened or shortened.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 19 (conjoined series), p. 13.]

A.D. 1836, July 13.—N° 7147.

HORLIAC, LOUIS MATTHIAS.—(*A communication.*)—“ Certain “ improvements in carriages and harness.”

[No Specification enrolled.]

A.D. 1837, February 16.—N° 7300.

GILLETT, WILLIAM STEDMAN.—“ Improvements in harness “ for draught and saddle horses.” The improvements “ relate, “ first, to the mode of connecting the traces to the collar, and to “ the carriage. Secondly, to an apparatus for causing a horse to “ stand quiet, and also to prevent its running away.” The traces are attached to the collar “ at a higher position than usual,” by which means a more central draught on the collar is obtained ; they do not proceed directly to the carriage, but are drawn out of a straight line by means of a band passing under the horse. This band is to be padded (the patentee prefers that it should contain a bent steel spring), and to it are buckled the saddle straps. The traces are each made in two parts, one reaching from the collar to

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the band, the other from the band to the carriage. The apparatus consists of a head strap having at each end a chain which passes freely through the eye of a hook and is connected to the rein. The hooks are put into the sides of the horse's mouth, and, when the rein is pulled, they will be drawn upwards and drag up the mouth, thereby causing the horse to be checked and become quiet.

[Printed, 8d. Drawing. See *Repertory of Arts*, vol. 8 (*new series*), p. 219.]

A.D. 1838, January 13.—N^o 7540.

DAVY, EDWARD.—“ Certain improvements in saddles and “ harness for horses.” This invention aims at preventing friction between the animal’s coat and those parts of the saddle and harness which come in contact therewith, and at giving an elastic or yielding quality to those parts. These objects are effected by the application of india-rubber sheeting. In riding saddles it is applied to the pommel, cantle, pannels, girths, and all other parts which touch the animal’s body; in harness, to the collar, saddle, belly-band, and crupper. The saddle seat, flaps, and knee pads, may be covered with the same and remain “ with the naked “ indian-rubber outwards.” Sometimes the saddle, whether for riding or harness, is made without a tree. Shavings or cuttings of india-rubber form part of the stuffing for collars. Full particulars of the method of manufacturing the various articles are given. The patentee rivets or otherwise fixes a block of india-rubber upon the foot-rest of the stirrup-iron.

[Printed, 8d. Drawing. See *London Journal (Newton's)*, vol. 15 (*conjoined series*), p. 136.]

A.D. 1838, June 7.—N^o 7677.

THOMAS, ROBERT.—“ Certain improvements in apparatus to “ be attached to carriages for the purpose of preventing horses “ from starting, and for stopping or restraining them when run- “ ning away or descending hills.” A metal shaft, horizontal and parallel to the axle, turns freely and slides in brackets fixed thereto. A flanged tube, attached to a larger tube, embraces the shaft, but allows it to turn and move freely within it. The tubes are connected by a coupling collar and a groove. Within the larger tube is a spiral spring coiled round the shaft, and bearing at one end against the end of the smaller tube, at the other

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against a collar on the shaft. The larger tube, which slides over this spring, forms the barrel on which is wound a check cord connected by branch reins to the curb bit, and, if required, to the bearing rein and to loops passed over the horse's ears. At the small tube end of the shaft is another spiral spring, bearing against one of the brackets and a nut or washer on the extremity of the shaft; at the other end is a pinion, and on the inner rim of the nave a "ring of teeth," that, when the pinion is slidden into gear, the motion of the wheel may communicate similar motion to the shaft and barrel. At the outer end of the barrel is a clutch which acts upon a pin passed through the shaft. A cord, fastened to a stud on the smaller tube, and intended to draw the tube and barrel along for the purpose of locking the latter to the shaft, is carried under a guide pulley to the driver's seat or to any other part of the carriage. By pulling this cord the apparatus is thrown into gear, the check cord is wound round the barrel, and the horse is pulled in. In order that the action may not be too sudden and violent, the check cord is connected to another cord passed round a spring barrel, so that, while it is winding round the barrel, a length of cord is given out from the spring barrel, causing thereby the tension of the check cord upon the curb to operate more gradually. Loops of catgut or cord, connected to the check cord and passed over the horse's ears, help to prevent him from rearing. The ends of these loops are inserted into the cheek pieces of the bridle and united at top by a spiral spring.

[Printed, &c. Drawings. See London Journal (*Newton's*), vol. 15 (*conjoined series*), p. 411.]

A.D. 1838, December 17.—N^o 7906.

MOAT, CROFTON WILLIAM. "An improved mode of applying "horse power to carriages on ordinary roads." The machine, denominated an accelerator, by means of which the patentee carries out his invention, is composed of the following parts:—A wooden frame (with iron fastenings) on four wheels; shafts, supported from the bed of the fore axletree by vertical planks; from each shaft hangs a shield made of a series of planks placed edgewise under each other, the lowest one swinging on a pivot in such a manner that on "meeting with any obstruction it may rise "and pass up the outside of the shield;" and a pole hanging by an iron rod placed under the perch bolt; it supports a stay to the

steering apparatus, and is attached behind to the sweep which connects the after ends of the shafts and the pole together. The sweep has a projecting ridge of iron which fits into an iron catch, and a piece of wood is so fixed above as to prevent the sweep from jumping out of its place. Other parts are two raising wheels, acting upon systems of ropes and pulleys, and enabling the driver to heighten or lower the bearing belts, to which they are united by hooks and spans; a driving seat, supported on springs over the circle and perch bolt by two upright pieces of wood mortised on to the top of the bed of the fore axletree; a steering apparatus composed of a rope wound round a wooden barrel; each end of the rope, after passing through pulleys which are fixed on the top and as near to the end as possible of the bed of the fore axletree, is fastened to a hook on one side of the frame. The principal use of the steering apparatus is "that of obviating the effects of any inequality in the relative strength of the horses." The other parts are four pieces of wood, "placed across and firmly fixed to the frame, the three lower ones supporting the coaches on springs;" five iron bars connecting the pieces of wood and the bed of the after axletree together; two coaches, one behind the other; and a guard's seat. The bearing belt is of leather, having straps at the ends, by which it is buckled on to bars of wood, and others on the sides, by which it is joined to the collar; the bars are united by an iron span over the horse's back. "A one-horse machine may be made on this principle, which would allow of having a bent axletree for the fore wheels."

[Printed, 6d. Drawing. See Mechanics' Magazine, vol. 40, p. 65.]

A.D. 1839, April 25.—N° 8050.

BROWNE, JOHN.—"Improvements in saddles and stirrups for horses and other animals, part of which improvements are applicable to apparatus for carrying packs by men." The saddletree is made of steel in manner following:—To each end of two or three rounded bars is united a horizontal bar with openings therein for straps; to the top, one bar (or near the top, two), is joined and continued behind with additions for cantle, valise, &c. At the pommel are pieces for supporting holsters. Straps, lined in the middle with arched pieces of metal, may be substituted for the rounded bars. A frame of wood, cork, whale-

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bone, or steel, is placed underneath the above and well padded. The girth is to be long enough to go "once round the horse over " the frame padding, then again round the horse over the saddle." The tree of a side saddle has an additional bent bar on the first and second rounded ones; the bent bars "may be so disposed as " to form seats on either side of the saddle." The stirrups are of two kinds; "the dress stirrup," which is a boot (open in front until near the toe) attached to two pieces of metal, wood, or whalebone, which unite at the top, where there is a hole for the stirrup leather. One piece is continued underneath the heel of the boot, so as to form "a footstep for mounting." "The train " bearer stirrup" is intended for ladies in muddy weather; it is composed of a foot board and basket, and there may be an additional step between them to assist in mounting; the whole is supported by two pieces of metal, &c., as before described. "The " traveller's friend or pack bearer" is made as follows:—Two bars of metal, wood, or whalebone are bent at the upper part where their ends are joined by a cross-bar, to which two hooks are attached for the purpose of holding the pack. Two straps unite the middle of the bars with the cross-bar and hooks, and two pieces of metal in the form of a Δ or half circle are placed between the straps and the bend of the bars, attached to either of them.

[Printed, 8d. Drawings. See Inventors' Advocate, vol. 1, p. 194.]

A.D. 1839, September 27.—N^o 8228.

PIDDING, HENRY JAMES.—"Improvements in collars for " horses and other animals." In this invention a strong, stiff, metal frame, constituting part of the collar, is substituted for the ordinary moveable hames, and it is so constructed as to allow of its expanding and contracting to vary the size of the opening in which the horse's neck is received. The frame is made in two parts, jointed at top, but open at bottom for the reception of a rack somewhat in the shape of an oval ring; the upper part of the ring (on which is the rack) is flat, and has in the middle a projecting part to prevent either side from passing too far. The lower ends of the frame may be made much thicker than usual, and the rack (a straight piece) may pass freely through them, and be locked by means of two rings which enter recesses formed in the ends.

[Printed, 8d. Drawing. See London Journal (*Newton's*), vol. 19, (conjoined series), p. 12; Inventors' Advocate, vol. 2, p. 212.]

A.D. 1840, May 13.—Nº 8510.

BROMWICH, BRYAN I'ANSON.—“Improvements in stirrup ‘‘irons.’’ The eye for the stirrup leather is attached to the stirrup frame by a swivel joint, or it may be permanently fixed thereto. On each side of the frame is a series of rollers (either in contact with each other or separated by a non-revolving piece of metal), which enable the foot to disengage itself readily in case of accident. The bottom of the stirrup is formed into a frame, into which is screwed a surface of leather or other substance for the tread of the foot.

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 18 (*new series*), p. 97; *Inventors' Advocate*, vol. 3, p. 322.]

A.D. 1841, January 6.—Nº 8775.

DAY, JOHN ROCK.—“Certain improvements in the construction ‘‘of collars for horses.’’ The collar differs from those in ordinary use in three particulars:—The mode of attaching the opening parts of an expanding collar; the employing wooden ribs as a forevale; and the affixing to the frame arms for the attachment of the tugs. The frame is of iron, and in two parts connected by a pin joint at top, but open at bottom, where they open or close by means of a curved bolt sliding into a segment box. The bolt has at the end a tooth which, when the collar is closed, drops into a slot in the under part of the box and is held fast by a spring bolt. To remove the collar from the horse's neck, a stud extending from the spring bolt must be drawn back, while a stop at the outer end of the box prevents the collar from expanding too far. If the collar be intended for double harness, bent rods of an elliptical form extend from the lower part of the frame; to these a kidney link is appended with a ring for the pole chain. This link has elliptical eyes at its ends, and, when the collar is to be expanded, the link must be turned up, thereby enabling the rods to slide apart.

For cart harness a lever is employed instead of a spring bolt. When the collar is closed, the lever is to be raised and its tail confined by a pendant link; its nose is thereby pressed down upon the bolt. For additional strength there may be two segment boxes and two sliding bolts. The ribs are screwed to the front part of the metal frame. The arms form extensions from the frame; on each side of either arm is a bracket pinned to the frame, and a

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tug eye, introduced between the arm and its brackets, is secured by a pin which passes through the three.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 20 (*conjoined series*), p. 339; Mechanics' Magazine, vol. 33, p. 78; Inventors' Advocate, vol. 5, p. 37.]

A.D. 1841, February 3.—N° 8830.

HANCOCK, WILLIAM, the younger.—“An improved description of fabric suitable for making friction gloves, horse brushes, and other articles requiring rough surfaces.” The warp of the fabric is fine hempen or cotton yarn; the weft is spun horsehair, either alone, or combined with spun wool or cotton, long horsehair unspun, the fibre called manilla, the fibre of the cocoa-nut tree, fine split cane, or whalebone. The loom in which the fabric is woven differs from the velvet loom in having “the ground bar and ground or chain roller” and “the breast bar and knee roller” of the mat loom. The weaving and cutting to form the pile are performed as in velvet weaving. For the purpose of fixing the horsehair with additional firmness, a weak solution of gum tragacanth in water, or a solution of caoutchouc, “is smeared over the ground between the ground bar and harness, and the shoot is saturated with the same.” The patentee does not claim the invention of making any of the articles to which his fabric is applicable.

[Printed, 4d. No Drawings. See London Journal (*Newton's*), vol. 22 (*conjoined series*), p. 273; Mechanics' Magazine, vol. 33, p. 175; Inventors' Advocate, vol. 5, p. 98.]

A.D. 1842, March 21.—N° 9301.

HANCOCK, WILLIAM, junior.—Certain improvements in currycombs and brushes. The improvement in currycombs consists in making the backs flexible; this is effected by besmearing the back of a suitably shaped piece of wire card with two or three coats of dissolved caoutchouc or other strong flexible cement, and laying thereon, while it is in a sticky state, a piece of leather, felt, or thin veneer, the under side of which has been previously coated with a similar solution. When the junction of the parts is complete, pins are inserted round the edges, or the edges are sewed together with wire or thread. The brushes chiefly employed in dry brushing are made with flexible backs, like those of the currycombs. If the brush be of a circular form, the bristles or

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hairs are fixed in a flexible back which is attached to a solid back. To give a springiness to hair and other brushes, a plate of metal, or whalebone, or horn, is inserted between the parts of the back; or the top piece is made diminishing gradually in thickness from the handle. In a wheel brush or cylindrical brush, the solid disc or cylinder has a groove cut round it for the reception of the flexible back. Expanding brushes have attached to the under side of the back sheet caoutchouc or prepared cotton, in such a manner as to form an air-tight bag; air is introduced through a screw plug in the handle. Bath brushes, &c., are protected from being loosened by the water by cementing to the under side of the flexible back, before drawing the bristles, a piece of india-rubber cloth. By fastening a straight back at the ends only to the ends of a curved solid back, the yielding, when the face of the brush is pressed against anything, takes place upwards. In brushes for painting, varnishing, &c., the knot of bristles is placed in a round metal socket. A tapering metal ferrule is passed down the middle and through an orifice in the socket; the bristles will be thus so firmly compressed as not to require other fastening; in large brushes, however, the ends also should be embedded in pitch or other cement. A taper handle fits into the ferule. In plastering brushes, the frame, into which the ends are inserted, consists of two plates of tin joined at the ends and strengthened by cross-pieces; holes are-punched in the sides, through which the binding wires or strings are passed.

[Printed, &c. Drawing. See *Repertory of Arts*, vol. 1 (*enlarged series*), p. 250; *London Journal (Newton's)*, vol. 22 (*conjoined series*), p. 22; and vol. 23 (*conjoined series*), p. 382; *Mechanics' Magazine*, vol. 37, p. 350; *Record of Patent Inventions*, vol. 1, p. 156.]

A.D. 1842, April 6.—Nº 9314.

READ, JOHN, PUTLAND, HENRY, and WOODS, CHARLES.—“Improvements in the construction and make of driving reins, “harness bridles and reins, and in bridles and reins for riding.” This invention relates to a mode of making reins for riding or driving, such that, while the rider or driver has only one rein in hand, he will have as great control over his horse as he would otherwise have with a double rein. At a certain distance from the bit the rein branches on each side into two parts. The lower branch is attached to that part of the bit where the leverage is most powerful; it hangs slack when not in use. The upper branch has on part of it a coiled spring with a metal stop at the

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lower end, where it is riveted or otherwise fastened to the branch. A case, having a metal stop at the upper end, covers the spring and is buckled at the lower end to the bit where the leverage is least. A strong pull of the rein will by this arrangement bring the lower branch into action. If two bits are used, the upper branch is fastened to the snaffle, and the lower to the curb.

[Printed, 10d. Drawing. See *Repertory of Arts*, vol. 1 (*enlarged series*), p. 6; *Record of Patent Inventions*, vol. 1, p. 183.]

A.D. 1842, June 9.—Nº 9387.

BENCRAFT, STEPHEN.—“Improvements in the construction of saddletrees.” The object of this invention is to give elasticity to the seats of saddles by applying metal springs to the hinder part of the trees, so that the weight of the rider may not press on the spine but on the ribs of his horse. A straight metal spring is screwed on to a plate under the cantle; to this spring are riveted three arched springs, the ends of which rest on the sides of the tree under surfaces of metal.

[Printed, 6d. Drawing. See *Repertory of Arts*, vol. 1 (*enlarged series*), p. 87; *London Journal (Newton's)*, vol. 26 (*conjoined series*), p. 100; *Record of Patent Inventions*, vol. 1, p. 388.]

A.D. 1842, July 12.—Nº 9417.

DEAKIN, THOMAS.—“Improvements in the manufacture of parts of harness and saddlery furniture.” The patentee manufactures various articles, known by the term of saddlers’ ironmongery, of one or more pieces of horn or hoof, or of horn or hoof conjoined with any kind of metal or other material. Properly shaped pieces of horn, heated in the usual manner, are put into metal dies, which have been previously engraved, &c. and made sufficiently hot to ensure a good impression, and are submitted to the pressure of a vice and left there until nearly cold; they are afterwards finished in a lathe, or by a file and scraper, and polished. To make a territ the metal shank of the screw part is inserted into a hole bored in the horn; pressure unites the horn to the metal shank so firmly as to make the “whole as one piece.” Or a metallic skeleton may be overlaid with horn and pressure applied. Or horn may be riveted, or narrow slips of whalebone lapped and woven, round a metallic skeleton.

[Printed, 4d. No Drawings. See *Record of Patent Inventions*, vol. 1, p. 433.]

A.D. 1842, September 15.—Nº 9470.

ROLT, JOHN. — “ Certain improvements in saddles.” The pommel of the saddle is constructed in such a manner “ as to admit of an umbrella being fixed thereto ; ” it is made sufficiently high to contain a socket, into which a piece of metal fits accurately and is prevented from turning round by a feather or projection on it and a groove in the socket. A curved projecting arm, having at one end a socket for the reception of an umbrella stick and at the other end two collars, is connected to the metal piece by inserting the part between the collars into a slot therein, and the connection is strengthened by a double pin which enters holes in the outer collar and metal piece. The pin is attached to the metal piece by a chain. A case hangs from the saddle bow for the reception of the umbrella when not in use.

[Printed, 6d. Drawing.]

A.D. 1842, October 6.—Nº 9484.

SHIPLEY, JOHN GEORGE. — “ Certain improvements in saddles.” These improvements are, first, making the pannal moveable by connecting it to the tree by means of rings and spring plugs and hooks and eyes. The rings and hooks are attached to the pannal; sockets for the plugs (which pass through the rings) and eyes for the hooks are screwed to the bars and gullet; bracelet clasps may be substituted for the rings and plugs. Secondly, the application of a felt lining tied at the bearings of the bars between the pannal and tree, “ whereby a broad fitting saddle can be “ adapted to fit a horse not requiring so wide a one.” Thirdly, the fastening by strings or thongs a metal lining between the pannal and tree, “ when required to carry weight in racing or “ steeple chasing.” Lastly, forming the bars of steel and whalebone, either separate or combined, or of wood and whalebone combined, and employing whalebone in the straining of the tree.

[Printed, 10d. Drawing. See Mechanics’ Magazine, vol. 88, p. 392.]

A.D. 1842, December 29.—Nº 9575.

THURLOW, The Right Honorable EDWARD THOMAS HOVELL, Lord. — “ An improvement or improvements in bits for horses “ and other animals.” In this improved bit the openings at the top, to which the curb chain is hooked, are “ con-

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" structured by, as it were, elongating backwards and circularly " during forty-five degrees, or one-eighth of a circle whose centre " is in the mouth-piece," the common or old form, such new form being like the kidney link of hames. In place of the " Buxton " bend" (which is open and forms a hook) at the middle of the lower branches, " that space is filled up by a continuation of the " branch or cheek on each side of the bit," and suitable means may be formed in such continuation for connecting the reins.

[Printed, 10d. Drawing. See *Repertory of Arts*, vol. 3 (*enlarged series*), p. 70.]

A.D. 1843, June 23.—Nº 9799.

POOLE, MOSKS.—" Improvements in collars for horses and " other animals." This invention consists of a mode of constructing collars by introducing into the inner part thereof an air-bag, thereby affording an easy cushion for the shoulders of horses, and enabling the manufacturer to dispense in great measure with the straw, &c. generally used for stuffing. The air-bag is made of several layers of cloth prepared with " a solution of india-rubber, combined with the essence of turpentine," and shaped on moulds. Details of the mould and the manufacturing are given in the Specification. To prevent the horse's perspiration from decomposing the india-rubber, the air-bag is covered with impermeable cloth or other suitable material. Air is forced in through a tube, either bent or straight, according to the part where it is placed.

[Printed, 1s. 2d. Drawings. See *Repertory of Arts*, vol. 3 (*enlarged series*), p. 83.]

A.D. 1843, July 24.—Nº 9851.

DAVIDGE, JOSEPH DANIEL.—" Improvements in manufacturing certain materials as substitutes for whalebone, applicable to " various useful purposes, and in the machinery for effecting the " same." The materials employed are strips of metal, which, when rolled, drawn, or twisted into tubular forms, are substituted for whalebone in whips, umbrella and parasol frames and sticks, fishing rods, and other articles. The machinery for giving the tubular form is composed of a frame; a bar on which a sliding piece traverses the length of the machine; a mandril; a screw shaft; and two wheels, the upper gearing with the lower. The mandril projects from the axle of the upper, the screw shaft from

that of the lower wheel. In the lower part of the sliding piece is cut a thread corresponding with the screw of the shaft; the upper part is formed into a spring clasp by being split down the middle, and it is made to bind against the mandril by means of a thumb screw; immediately under the thumb screw is a slot, through which the strip of metal is passed to be wound on the mandril, its end being attached by passing through a slot in the upper end thereof.

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 24 (conjoined series), p. 257.]

A.D. 1843, October 5.—N° 9888.

BANTON, EDWARD.—“ Certain improvements in saddles and “ horse harness.” The patentee claims seven inventions. First, a pannal made moveable by means of a peg or projection at one end of the tree and a spring lock or other spring fastening at the other, and, on the corresponding ends of the pannal, a staple which readily admits the peg, and a pivot or staple of such kind that the fastening may enter it and be secured or detached by means of a key. Second, an improved bit, in which the cheeks and mouth-piece are three distinct pieces; the ends of the mouth-piece and the holes in the cheeks are “ square or octagonal, or of a figure “ having a greater or less number of sides,” so that the port may assume different positions; the parts are fastened by screws. Third, a safety bit; on the top and lower end of each cheek is a roller working on an arm; the nose-band and chin-stay, which pass over their respective rollers, are connected to a rein passing over the lower pair; by pulling this rein the band and stay are drawn tight round the horse’s mouth. Fourth, a substitute for buckles in lengthening and shortening straps; a metal trough with hollow cylindrical projections in it is riveted or otherwise fastened to the end of one strap, all the projections but one being closed at bottom; on the trough cover are a like number of projections at such distances and of such size as to enter freely into the others; one of them is longer than the rest and, when the cover is put on, passes through and projects from the open one; the cover is attached at one end to the same strap as the trough, and the end of the strap is slit to serve as a hinge; or, if the strap is composed of two strips sewed together, the ends are left open for the same purpose; the cover, when shut, is secured by a spring bolt pushed through a slot in the long projection; the strap to be lengthened

or shortened is perforated with corresponding holes. Fifth, the application of a coating or coatings of black varnish or enamel to harness straps (either of one or more pieces) when they "are finished in every respect," so that the edges may be protected. Sixth, the application of a coating of vitreous enamel to those parts of horse furniture which are subject to friction during use; the articles are dipped in china clay mixed with water, left to dry, and heated in a furnace until they acquire a red heat; they are allowed to cool, sprinkled slightly with the powder called lead or soft glass (or they may be dipped in a mixture of the powder and water), and again heated; sometimes the inner parts only are covered with a lining of glass attached in any convenient manner. Seventh, an improvement in girths by making the shape longer than usual and of India-rubber.

(Printed, 107. Drawing.)

A.D. 1844, February 27. -- N° 10,084.

HARBOUR, THOMAS. -- (*A communication.*) -- "A machine for manufacturing boot soles, taps, and also for rivetting leather, hose, trunks, and for other purposes to which the same may be usefully applied." The machine is constructed as follows: -- Across the middle of a horizontal cast-iron bed a shaft is placed supported in boxes. From near the centre of this shaft five arms project, the middle one actuating a driver lengthways on the bed. One end of the driver passes through and is guided by a standard; to the other end is secured a flat cast-steel cutter, which is fitted to slide close upon a plate of similar form and is confined by an upper fixed cutter plate, through which is screwed a steel tube tempered and forming a female cutter. Through the tube wire or rod to be made into rivets passes down through a corresponding hole drilled through the sliding cutter, and rests upon the lower plate. The sliding cutter should be bored out on its upper surface opposite the tube for the reception of a square steel disc or button, through which a hole is drilled corresponding to the hole in the tube. On the driver is a cap having a flange, which moves horizontally a rider placed directly over the sliding cutter. In the rider are two vertical punches, the one a female for punching the sole, &c., the other a male for inserting rivets into the holes made by the former. Directly underneath is a stud

or stake, upon which the punching and rivetting are performed. Upon each side of the rider is a standard, between which is the fulcrum of a punch lever, the back end of which is forked and raised by two of the cams twice in every revolution of the shaft. On the side of one fork is a stud, which traverses in a groove formed on the inside of an eccentric secured to and moving with the shaft. The groove is so formed as to keep the forks continually pressing upon the cams and shaft alternately. The punches are raised by a lifter supported by a pin through its upper end, which fits into a mortise cut in the under front end of the punch lever. Two pins, one from each punch, pass through corresponding slots in the lower end of the lifter, and the punches are kept up alternately by spiral springs. Directly under the supporting plate is a horizontal guide wheel, having a toothed rim and ranging in a line with the space between the ends of the punches and their stud. This wheel is placed centrally upon the upper end of a vertical shaft, and is moved periodically by means of a ratchet wheel upon the lower end. A pawl catches into the teeth of the ratchet at each recession of the driver, and thereby moves the sole or other article the required distance (the sole is pressed by the operator against the rim of the guide wheel). The guide wheel, shaft, and ratchet turn upon a pin screwed vertically through a gauge slide, which "is placed horizontally, lengthwise, and "centrally" in front of the bed through an opening under the rivet stud, and is supported in front by a bracket. It slides along this bracket and is fixed in position by means of an index lever, which passes through a gap near the middle of the slide and is furnished with spurs fitting into notches in the bracket. On the slide is a horizontal lever (with a light spring at its back), which forces the pawl into the ratchet; the end of this lever is drawn back at each recession of the driver by means of a tumbler, which plays upon a pin in the end of an arm secured to the under side of the front of the driver by a ring bolt and nut; this bolt passes through and binds together the cap, the driver, the cutter plate, and the arm. In the manufacture of leather hose or pipes, a mandril must be substituted for the rivet stud, and "the point of "the rivetting punch should be formed into a blunt centre punch, "having a stake of similar form inserted, point upwards, directly "underneath in the upper surface of said mandril."

[Printed, 1s. Drawing. See London Journal (*Newton's*), vol. 26 (conjoined series), p. 85.]

A.D. 1844, July 3.—N° 10,246.

BENCRAFT, STEPHEN.—"Improvements in the construction and fitting up of harness for the prevention and cure of galled shoulders to draught horses." Instead of attaching the traces to the harness by a single ring, the patentee puts two rings on each side, so placed that the straps fastened to the upper ones cause the point of draught to be brought "to the front of the spine which forms the withers, thus admitting of the free action of the fore legs and shoulders," while those fastened to the lower ones keep the collar in its place. The straps are buckled to the traces.

[Printed, &c. Drawing. See *Repertory of Arts*, vol. 5 (*enlarged series*), p. 153; *London Journal (Newton's)*, vol. 20 (*conjoined series*), p. 102.]

A.D. 1845, January 23.—N° 10,492.

GREEN, GEORGE JOSEPH.—"A certain improvement in or addition to harness or harness furniture." This addition consists of an apparatus for holding the reins during the absence of the rider or driver; it may be attached to any convenient part of the harness or carriage; in saddles it is placed under one of the flaps. It has two arms connected by a joint; one end of the upper arm is pressed upon the lower one by a spring. Pressure upon the other end lifts the upper arm, when the reins are introduced and held fast between the arms by the force of the spring. The joint and spring may be placed at one end of the moveable arm. Or the arms may form a right angle, the moveable one being also rectangular in shape; it turns on a pivot at one end, and near the other end is a semicircular wedge moving on a pivot in the fixed arm. By turning the handle of the wedge, so as to bring it under the end of the moveable arm, the arms are tightened and the reins secured between them.

[Printed, &c. Drawing. *London Journal (Newton's)*, vol. 27 (*conjoined series*), p. 100.]

A.D. 1845, March 17.—N° 10,568.

PERRY, STEPHEN, and DAFT, THOMAS BARNABAS.—"Improvements in springs to be applied to girths, belts, and bandages, and improvements in the manufacture of elastic bands." The springs are strips of vulcanized india-rubber. In girths they are applied between the ends of the web and the buckles, their ex-

tremities being securely stitched between surfaces of leather. In belts and knee-caps they form the parts by which the buckles are joined on. The elastic bands are cut out of sheets of vulcanized rubber; elastic rings and endless bands from tubes of the same.

[Printed, 10d. Drawing. See *Repertory of Arts*, vol. 7 (*enlarged series*), p. 211; *London Journal (Newton's)*, vol. 27 (*conjoined series*), p. 286.]

A.D. 1845, December 10.—Nº 10,991.

LAWRENCE, HENRY.—“An improved buckle suitable for “harness and other purposes.” The patentee divides his invention into three parts—buckles, first, for harness; second, for machines; third, for belts for fastening garments. In the first, the buckle consists of two main parts united by a cross pin. One part is formed of two cross bars in different planes, and joined together by two side pieces. Some bearing of the harness is fastened to the lower of these bars by looping it round it. The other, or buckle part, is four sided, but bent into a “double curve “shape.” The free end of a trace is brought under the outer bar of the buckle part, through the eye, through the space between the pin and the upper bar, and through a leather loop on the bearing end. For greater security the upper bar is ridged longitudinally on its under surface. For leathers of more than ordinary width, the eye of the buckle part is provided with a cross stay, over which the leather is drawn before passing between the pin and upper bar. This buckle part may have two side bars for the attachment of other straps. In the second, the buckle part is hinged to the other by two pivots, and the bearing end is secured to the lower bar by metal rivets. The third is composed of a four-sided frame, a cross bar to which the end of the belt is fixed, and a metallic spring clasp, having a finely serrated edge and turning on a bent axis. A spring or springs of gutta percha may be used instead of a metallic spring, by making the frame with two pins projecting inwards, and the clasp with two projecting outwards, each having a flange or head. A ring of gutta percha is passed round each pair of pins and under the bar. If only one spring is to be used, the bar on which the clasp turns has a tongue projecting laterally and downwards, the clasp a similar tongue projecting upwards, and a ring of gutta percha is slipped over both tongues.

[Printed, 8d. Drawing. See *Patent Journal*, vol. 1, p. 60.]

A.D. 1846, April 15.—N° 11,165.

FONTAINEMOREAU, PIERRE ARMAND LE COMTE DE.—*(A communication.)*—“ Improved mode of constructing certain “ parts of the harness of horses and other beasts of burden.” This invention applies especially to collars, but is equally serviceable for all parts of harness and saddlery which require padding. It consists, first, in the substitution of a padding composed of a mixture of linseed and oil which contains no acid or animal fat, for the paddings in general use. The patentee describes his method of mixing and aromatizing. Secondly, in separating the straw, &c., employed for shaping the body of the collar by covering it with oilskin or any other impervious material. The collar is constructed in the ordinary manner.

[Printed, 8d. Drawing.]

A.D. 1846, July 13.—N° 11,287.

MIDDLEMORE, WILLIAM.—Certain improvements in saddles. The patentee uses strips or straps of india-rubber (vulcanized or otherwise), or a layer of india-rubber, in place of the webs which extend from the head to the cantle, and tacks or otherwise fastens them to the upper side of the tree. A linen cloth is stretched over the strips and attached to the tree in the usual manner, except that the front part is left unfastened. The bellies are next nailed on, and over them and the cloth a layer of india-rubber is stretched and tacked to the tree. The saddle is then completed in the ordinary way; but the linen webs, to which the saddle straps are fastened, go round each side, instead of across the tree. The layer of rubber may be stretched on over the stuffing, &c., so as to be immediately under the leather or outer covering. He also applies india-rubber in the construction of the heads of ladies' saddles, thereby making, “ as it were “ a cushion, superior in elasticity to that formed by the ordinary “ stuffing.” Other elastic substances may be employed instead of india-rubber.

[Printed, 8d. Drawing. See Patent Journal, vol. 2, p. 577.]

A.D. 1846, July 23.—N° 11,305.

DICKSON, JAMES HENRY.—“ Certain improvements in saddles,” by means of which the girths are fastened to an arrangement

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of springs and sliding frames, which the patentee denominates "a lever bar," thereby affording relief to the horse when making any great exertion. The apparatus is composed of a back plate; an outside frame of brass or other metal, having on the top side two eyes through which an iron pin passes; a leather strap, made with a loop through which likewise the pin passes, and nailed or otherwise secured at the other end to the saddletree; a smaller frame sliding freely up and down the outside one; a plate, forming part of the outside frame and "fixed at right angles with the "front," the ends of which do not touch the frame, but leave a space for the slider; two strong curved springs, so fixed that the ends of the upper one bear against the top of the slider, and the ends of the lower one against the plate; a pin which passes through two holes in the springs to prevent their moving about; two friction rollers fixed to the outside frame to allow the slider to move more freely; and three buttons on the slider for the attachment of the girths. One or two of these lever bars may be fixed on a man's saddle; for a side saddle only one is used (having four springs), and that is applied to the right side.

[Printed, 6d. Drawing. See Mechanics' Magazine, vol. 30 (*conjoined series*), p. 281; Patent Journal, vol. 2, p. 589.]

A.D. 1846, August 13.—Nº 11,334.

HASLUCK, DANIEL SYDNEY.—(*A communication.*)—"Certain improvements in the manufacture of harness for beasts of burden." This invention relates to constructing the body of the harness saddletree of metal, and with holes in it for screwing thereto the various leather parts. Part of the metal on the top is cut away to reduce the weight, and a groove or "countersunk "part" is made on each side for the reception of the back band, which, together with the flaps and skirts, is secured to the body by the screws of the territs. The pad inside "is attached in the "manner usually adopted when the ordinary wooden trees are "employed."

[Printed, 6d. Drawing. See London Journal (*Newton's*), vol. 31 (*conjoined series*), p. 348.]

A.D. 1846, August 29.—Nº 11,358.

FOSTER, WILLIAM AIR.—"An improved mode of making belts "for driving machinery, traces, reins, and other articles of leather, "pelt, or parchment, and for an improved apparatus or machine

" for the same." Two operations are performed by this machine; on one part a circular piece of leather is cut into a strap; on the other the strap so cut is stretched straight. The frame, consisting of two sides bound together by three stay bolts, sustains all the moveable parts and also a square cutting table of wood. The first arrangement is for the purpose of cutting a thick evolute of leather into a strap. A rectangular recess, "passing about twelve inches beyond the centre," is formed in the table to receive a metal piece having in it a dovetail groove for the reception of the head of a sliding centre pin. This pin passes through the centre of the evolute (when a nut is screwed on to its head), and is attached by a cord passing over guide pulleys to a weight of about seven pounds. The weight, acting on the slide, keeps the evolute forward to pass against a stop, so that the strap cut may be of uniform width. On the end of the grooved piece is a platform serving as a sole for a sliding carriage, which is guided laterally by bevelled checks and adjusted between them. Under the carriage is a nut into which is passed a screw attached to the grooved piece and worked by a handle. In a bearing on the inner side of the carriage is the axis of the cutting knife, the edge of which can be set at any angle by means of a worm which gears with a toothed arc on the axis. A piece of metal spring, fixed to the side of the platform on the end of the grooved piece, slightly compresses the evolute in its advance to the knife. On the right of the knife is a slot with a friction wheel through which the strap descends to a reel. The reel is provided with deep flanges and is turned by a handle. Friction during the revolving of the evolute is diminished by six rollers, which project very slightly above the surface of the table. For cutting light leather the slide frame and appendages are not required. The evolute, thoroughly wetted, is laid on a circular table placed on the top of the cutting table. The circular table has on its under side a square centre stud, which passes into a square socket in a vertical axis supported in a step formed in a cross bracket. Above the table is a screw carrying a nut, whereto is fixed the knife, which is prevented from revolving with the screw by a guide rod placed parallel with the axis of the screw. The table and screw are so connected by a series of wheels, pinions, and arms (fully detailed in the Specification), that by turning one handle both are set in motion. The breadth of the strap may be varied by altering a "change wheel." To stretch the strap straight the reel with the

coil thereon is transferred to a rod, which passes through its centre and upon which it is free to turn. The rod is supported at each end by a pivot screw. The stretching barrel is composed of six (more or less) equal segments lying longitudinally on similar segments (of an internal concentric cylinder) attached to a common axis by oblique arms, two to each; the arms are jointed to the inner surfaces and to two nuts upon screws (one cut right, the other left-handed). On the axis of the barrel is a spur wheel, gearing with a wheel which gears with a third on the end of a "leading screw," to which a jointed tail saddle is attached by a half nut. In a frame on the saddle are two rollers, between which the strap is passed from the reel to the barrel. When the saddle has traversed the length of the barrel, it is disengaged from the screw by a small eccentric. When the winding is finished, the barrel is forcibly expanded by means of the oblique arms and nuts, the hoops (which confine the external segments), and the end plates of the internal cylinder having been removed. In each of the end plates is a projecting pin, which, being caught by arms suspended (when out of use) from the adjacent stay bolt of the frame, prevents the cylinder from revolving when the axis is revolved. When the barrel is sufficiently expanded, it is fixed by wedge rods driven into semi-circular grooves formed in the edges of the segments.

[Printed, 1s. 4d. Drawings.]

A.D. 1846, November 19.—Nº 11,455.

BROCKEDON, WILLIAM, and HANCOCK, THOMAS.—"Improvements in the manufacture of articles where india-rubber or gutta-percha is used." The improvements consist of peculiar means of applying these substances to a variety of purposes to which they have not heretofore been so applied, by means of the processes described in the Specification of a Patent granted to Mr. Alexander Parkes, dated the 25th day of March 1846." The processes enumerated in this Patent "produce certain changes in the qualities of caoutchouc and gutta percha, some of them similar to those produced by sulphur and heat in the process now termed 'vulcanizing,' in others purifying and colouring those substances." The word "change" is used by the patentees to denote the same process or processes, and the word "immerse" to signify "the mode of producing the change" by immersing the articles in solvents capable of producing such

“ change.” The preliminary manipulations and manufacture and the processes for coloring, embossing, printing, moulding, &c., have been described “ in the Specifications of other Patents, “ amongst others in the Specifications of the Patents granted to “ the within-named Thomas Hancock, dated the 18th of April “ 1837, the 23rd day of January 1838, the 21st of November “ 1843, and the 18th of March 1846, as well as to the first-named “ Patent of Mr. Parkes.” The substances or a compound thereof, “ with or without gritty or coloring matters and fibrous sub-“ stances,” are formed into sheets of any required thickness by means “ similar to those described in the Patents of the said Thomas “ Hancock.” From these sheets, “ whether combined with fabrics “ and fibrous and other substances or not,” are manufactured (amongst many articles enumerated) reins, traces, and other parts of harness, horse collars, horse-shoe linings, knee-caps, fetlock-boots, and parts of saddles. The “ change” is produced either when the substances are in sheets or made up into the article. The substances are sometimes manufactured into thread, the changing process being applied “ either before or after cutting the “ substance used into thread.” It is preferred to make sheets of the desired thickness of the thread, then to obtain the change, and then to cut the same into thread; this is done “ by coiling a sheet “ thereof around a cylinder of wood or other fit material, using a “ solution of shellac over the whole surface of the sheet, by which “ the coiled mass will be retained together.”

The cylinder is put on centres and caused to revolve against a knife constantly supplied with water; by this means “ successive “ discs of thread are cut off, the cement being afterwards dis-“ charged by boiling in a solution of potash.” The threads are “ worked into cords, ropes, braidings, plaitings, webs, whips, and other similar articles, and then immersed.

The handles of whips may be stiffened by introducing wood or other material during the manufacture. The foregoing are the only parts of this exhaustive Specification which relate to the present series.

[Printed, 6d. No Drawings. See *Repertory of Arts*, vol. 10 (*enlarged series*), p. 103; *Mechanics' Magazine*, vol. 46, p. 504.]

A.D. 1847, November 2.—N° 11,935.

BOULNOIS, WILLIAM.—“ Improvements in draught harness.” The object of this invention is to transfer as much as possible the

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draught from the shoulders to the back of the horse. On each side of the saddle are two projections with eyes through them. A bar slides through the eyes, and the trace is fastened to the part of the bar between them. A bent lever, turning on an axis fixed to the collar or hames, or "to other strap or apparatus passing over the shoulders," is connected to the bar by a slot at one end sliding along the bar, and by a chain and hook at the other end. The lever need not be employed, if the bar be so constructed and arranged as to be attached to the collar or hames.

[Printed, &c. Drawing. See *Repertory of Arts*, vol. 11 (*enlarged series*), p. 349; *Patent Journal*, vol. 4, p. 602.]

A.D. 1848, April 20.—N° 12,132.

HARRADINE, JOHN THANG.—"An improved mode of fitting "certain girths and straps." The patentee employs vulcanized india-rubber in affixing, first, girths to saddles, by attaching a leather frame to the tree, by rivetting or cementing india-rubber straps to the tree, and by fitting to them leather straps for the girth buckles. Secondly, straps to trousers, by sewing a small metal frame to the inside of each leg; each of the upper corners of the frame is turned over a wire which carries a roller; an india-rubber strap is fastened to the lower edge of the frame, brought over the roller, and attached to a stud which slides up and down in guides in the frame; a hole is worked in each side of the boot, or a strap, loop, or ring affixed thereto for the admission of the stud. Thirdly, in applying it to the waistband of trousers, by inserting a strap between the material and the lining. Fourthly, to gaiters, by placing a strap across the instep between the cloth and lining, and attaching a stud at each end of the strap to a hole, loop, or ring on each side of the shoe. Fifthly, to articles of dress and to collars of cloaks, instead of buttons, by sewing a thin metal plate to the article; a strap is fastened at the back of one end of the plate, brought over a roller at the other end, and secured to a hook which slides in a slot; for the plate a tube, slotted from end to end, may be used, and the strap be fastened to one end of it and to the "indented edge" of the hook tail, which is also a tube sliding in the other. Sixthly, to carriages instead of metal springs; to the lower rail of a gig or cart frame two guide blocks with rollers at the lower end are bolted to receive the axle; the strap is fastened and cemented to an iron hoop fixed on the rail, whence it passes under the first roller, over the axle,

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under the second roller, up to a tightening roller on the rail ; this last roller is provided with a ratchet and pawl to give any required tension to the strap : there are several modifications described of the arrangement of the strap. Lastly, to apparatus for holding papers ; an upright back on a stand has projecting divisions with holders between them ; a strap passes alternately behind each division and in front of each holder, and is secured at each end to the back ; for large papers, a frame or board has attached to it holders (with knobs on them), which are kept in contact with it by straps fixed either crossways or lengthways.

[Printed, 10d. Drawing. See *Artizan*, vol. 7, p. 33; *Patent Journal*, vol. 6, p. 64.]

A.D. 1849, September 13.—N° 12,765.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Robert Spencer.*)—“ Certain improvements in draught horse saddles, harness, and saddletrees.” The parts affected by this invention are gig and cart saddles, carriage pads, and blinkers. The tree of both saddle and pad is made of wrought iron or annealed cast iron, japanned, lacquered, or bronzed. The saddle flap is attached by means of a plate of spring steel and screws or rivets. In making a “ Stanhope pad,” two plates are required ; the under one is of thin sheet steel and stamped or otherwise made with a recess, so that, when applied to the upper one, a groove is formed for the back band. The carriage pad is constructed on each side with a joint, which is secured by the screw of the territ. The cart saddle has on each side a moveable or self-adjusting back board united to it by pins and projecting pieces or bearings. In all cases the trees are lined, stuffed, and completed in the usual manner. The blinker, likewise, is made of iron, and provided with a hollow box to receive the cheek strap.

[Printed, 6d. Drawing. See *London Journal (Newton's)*, vol. 36 (conjoined series), p. 163; *Mechanics' Magazine*, vol. 52, p. 218; *Patent Journal*, vol. 8, p. 294.]

A.D. 1850, January 29.—N° 12,953.

COLEGRAVE, FRANCIS EDWARD.—“ Improvements in saddles, parts of which improvements are also applicable to the standing rigging and other furniture of ships or vessels, and to the connecting links or chains of railway carriages, and other purposes where tension combined with a certain degree of elasticity

“ are required.” The first part of this invention relates to an elastic apparatus adapted to saddles. On the top of a metal frame are eyes through which a transverse bar passes, having one end screwed for the purpose of taking into a female screw in the hindermost eye. The bar, which has a round and flattened head, is passed through a leather strap nailed to the saddletree. Vertical rods are screwed or otherwise fastened in pairs to the frame, and between each pair is another rod (with a square neck) which slides through a hole in the bottom bar of the frame, where it is secured to fork pieces to which the girth straps are attached. The square neck passes through a hole in a cross piece and is held by a nut. All the vertical rods are enclosed in spiral springs, and, when the girths are tightly buckled to the straps, the cross bars are drawn down, and the springs are compressed. A hunting or military saddle is fitted with three sets of springs, a steeple chase saddle with two sets, and a racing saddle with only one. The second part consists in the adaptation of the apparatus already described to the shrouds, anchor cables, and other furniture of ships, also to the connecting links or draw bars or chains of railway carriages. Details are given of the arrangement which the patentee prefers, but he does not limit himself thereto.

[Printed, 10d. Drawing. See London Journal (*Newton's*), vol. 37 (*combined series*), p. 76; Mechanics' Magazine, vol. 53, p. 99; Patent Journal, vol. 9, p. 224.]

A.D. 1851, February 10.—Nº 13,502.

REED, JOSEPH HAYTHORNE.—“ Improvements in saddlery and harness.” This invention “ may be defined as the application of “ mechanical power for the purpose of tightening or slackening “ the girths of a saddle,” without the rider dismounting or drawing foot from the stirrup. A rotating axle, on three fixed bearings, terminates at its front end with a pinion, whose motion is prevented from reversing by a catch placed above it. The pressure of the catch is kept constant by a piece of india-rubber or other elastic material secured to the saddletree. The pinion is worked by a bent lever underneath it. The axle is perforated to allow of the introduction of straps to which the girth strap is connected. The bearings are adjusted to a plate screwed to the saddletree. There may be slight modifications; for example, the plate may be dispensed with; the catch may end in a point, and the pinion may have holes to receive it. “ The arrangement, with a slight

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" mechanical alteration, is applicable to either side of the saddle, " or may be used on both sides at once if desired, or may be " applied to the part of harness termed the saddle in a different " position when desirable."

[Printed, &c. Drawing. See Mechanics' Magazine, vol. 83, p. 167; Patent Journal, vol. 11, p. 246.]

A.D. 1851, March 10.—N° 13,548.

MURRAY, JAMES.—" Improvements in saddlery and harness." This invention is intended to afford an easy and safe seat to the rider, and relief to the horse. The saddle seat is formed as follows:—One central and two (or more, if desired) outer springs of the finest tempered steel, with slots in the front end, are attached to springs riveted to the pommel, so as to allow of a free longitudinal play. " The springs are curved each respectively to " the double curvature of the formation of the seat;" their longitudinal edges " are slightly curved to suit the form of the " back of the saddle, as well as to add to their strength;" and their extremities are secured to the cantle by being let into transverse plates (riveted to the cantle) over circular spindles. The central spring is forked, and there are holes in the forks for a lace of india-rubber, elastic metal springs, or other suitable material, to support the stuffing of the saddle.

[Printed, &c. Drawing. See Mechanics' Magazine, vol. 83, p. 239; Patent Journal, vol. 12, p. 18.]

A.D. 1851, November 15.—N° 13,813.

LOTT, JAMES.—" Improvements in harness and fastenings." Four improved fastenings are described; the first is for the purpose of joining trace ends; the ends have on their inner side rectangular projections of metal, or leather edged with metal, at corresponding distances, so that the projections of the one fit into the spaces of the other; over both passes a slide, which is retained in its place either by a spring catch, or by screws which are prevented from turning when not required to do so by pins, or by a spring (attached to the shifting trace) whose ends take into slots formed in both sides of one end of the slide. The second is a piece of metal (covered with leather) having in it a long oval hole, and jointed to a trace end, thereby dispensing with " the usual cock " eye." The third is a shaft tug stop; inside the ordinary sling in the end of the back band a piece of metal is fixed, on which is a

female screw to receive the screwed end of the tug stop ; on the stop is a catch, which takes into a slot or recess in the side of the sling. The fourth is a metal D ; in it is a slot through which the trace passes, and a screw fixes the D to any required position thereon ; there are swivels attached to each end for connecting bands or straps.

[Printed, 10d. Drawing. See Mechanics' Magazine, vol. 56, p. 416.]

PATENT LAW AMENDMENT ACT, 1852.

1852.

A.D. 1852, October 1.—N^o 43.

POOLE, MOSES.—(*A communication from Mr. Goodyear.*)—“ Improvements in harness, and in horse and carriage furniture.” This invention relates to manufacturing parts of harness, &c., from “ a hard substance produced from india-rubber and sulphur, “ with or without other matters, by subjecting the same to heat,” the proportions being always “ about two parts of india-rubber and “ one part of sulphur by weight.” Saddletrees, “ an^t the exterior “ parts which have heretofore been made of leather,” rings, winkers, and harness ornaments, are made of it. According to the nature of the article required, the substance is moulded or otherwise formed, or used with a lining of strong fabric, or it serves as a means of uniting a number of fabrics together ; the adhesion is caused by heat. To make the substance “ very tough “ and leather-like,” the heat is not carried beyond 290° or 293° Fahrenheit ; if it is to be substituted for metal, the heat is raised from 295° to 305° ; if it is “ largely composed of foreign matters, “ the heat may be raised more quickly.” A very excellent finish to a moulded article is obtained by pressing it in a die at a temperature of about 300°.

[Printed, 4d. No Drawings.]

A.D. 1852, October 19.—N^o 446. (**)

BIRD, ROBERT.—This invention consists in weaving “ straining “ webs of saddles ” with two warps, one composed of yarn of flax,

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hemp, or other suitable fibre, and the other composed of fine copper wire.

" In using such straining webs in saddles, it will only be necessary to cut off the exact length required and to affix the same to a saddle-tree."

[Printed, 4*d.* No Drawings.]

A.D. 1852, October 30.—N^o 569. (**)

BINNS, WILLIAM.—(*A communication.*)—(*Provisional protection only.*)—" An improved mode of constructing a draught breast-plate or collar for horses, or other draught animals." It " consists in constructing an universal adjusting and shifting draft breastplate or collar" " of iron, steel, or other suitable metal, or " a combination of wood and metal, so arranged and united by " means of a metallic joint as to expand and contract, and thereby yield to the shape of the animal, or to effect the same purpose by means of vulcanized india-rubber or gutta percha separately or combined with cotton, linen, or other suitable fabric, " in place of the metallic joint aforesaid. The tugs or draft plates are also so constructed as to be raised or lowered at pleasure."

[Printed, 4*d.* No Drawings.]

A.D. 1852, November 29.—N^o 903.

PINK, WILLIAM.—" An improved construction of stirrup-bar for saddles." This invention permits " of the disengagement of the stirrup leather from the bar, in case the rider is thrown with one of his feet still remaining in the stirrup." On the bar plate is a raised shoulder, from which projects a pin serving as a fulcrum for the stirrup bar. The inner end of the bar bears against the shoulder, when it is in the proper position for carrying the stirrup leather. Projecting from the shoulder is a stud pin, which, when the bar is in position, bears against the rear end of a spring lever (carried by the bar), and prevents it from yielding to any slight pressure put upon its lower end. Jointed to the bar, and supported by the other end of the lever, is " the ordinary yielding stop."

[Printed, 6*d.* Drawing.]

A.D. 1852, December 8.—N° 1003.

ORDE, Sir JOHN POWLETT.—“ Improvements in head gear for “ horses and other like animals.” The first invention is a bit, whereby cheek straps are dispensed with; it consists of a ring shaped suitably to embrace the lower jaw, and going behind it nearly in the place where the curb chain is usually applied; it is suspended at the back (either by an eye or by a stem called “a “ back branch ”) to the throat lash, being attached thereto by a . . strap or chain. There are eyes at the end of the mouth piece or bit proper for the attachment of the reins; in a curb bit the eyes are placed at the ends of descending branches. The second is a bit holder, consisting of a portion of a ring (with the ends turned up for the reception of any kind of bit), provided with either any eye or a back branch; or it can be made like the bit, but with eyes or slots in the sides, in which a snaffle can be fitted. The third is a head stall composed of a band passing across the forehead, and another passing over the head behind the ears; the two bands are united below the ears with a throat lash, from which the bit or bit holder is suspended, or the collar rein led.

[Printed, 6d. Drawing.]

A.D. 1852, December 13.—N° 1039.

MACKAY, GEORGE.—(*A communication.*)—(*Provisional protection only.*)—“ An improved construction of stirrup,” the object of which is to prevent the foot of the rider from being retained in the stirrup in case of a fall. The stirrup iron is constructed with a boss or upturned edge on the outer side; the boss is hollow, and contains a roller to which the stirrup strap is attached, and round which it may be wound. On the axle of the roller is a ratchet wheel; a pawl riveted to the stirrup prevents the strap from winding off. The strap passes from the roller “ along a “ groove made to receive it in the stirrup step, and up the side “ of the stirrup, thence through a slot formed in the upper end “ of the stirrup, and so to the stirrup bar of the saddle.” The stirrup is made sometimes “ without the hollow boss and take-“ up apparatus, but with an upturned end as a lateral guard for “ the foot of the rider.”

[Printed, 4d. No Drawings.]

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A.D. 1852, December 16.—N^o 1065.

DUNLOP, JAMES.—"Improvements in saddles." This invention "is intended to give freedom of movement to the part of "the saddle on which the rider sits," or to which the harness is connected. The saddle-tree is composed of two parts, one girthed to the horse, the other moveable on "a ball and socket joint." A socket or sockets are inserted in each part of the tree, and a ball or balls are fixed to a metal plate or plates corresponding in shape with the under part of the tree. The tree is padded and finished in the usual way. In cart saddles the balls are fixed on the board; they fit into sockets formed or inserted in the orb.

[Printed, *et al.* Drawing.]

A.D. 1852, December 20.—N^o 1114. (**) *

WATSON, CHARLES.—(*Provisional protection only.*)—"Improvements in carriage and stable brushes."

"These improvements are effected by making brushes of that "class denominated as carriage and stable brushes, with backs "composed entirely of gutta percha or other analogous substance, "whereby pliancy will be given thereto, the backs will not be "injured by the water used therewith, and they will be generally "rendered more useful." "I take a piece of gutta percha, and "perforate it with holes suitable to receive the ordinary bristle "stems, the lower ends whereof I fix therein. I then cover the "back with gutta percha solution or cement, and place thereon a "covering piece of gutta percha, which will thus be firmly secured "to the other portion of the back, also of gutta percha, and forms "a brush as aforesaid."

[Printed, *et al.* No Drawing.]

1853.

A.D. 1853, January 6.—N^o 36.

WHITENERY, BONNET.—"Certain improvements in or upon "the manufacture and treatment of leather, either alone or in "combination with other materials." The patentee removes the hair from skins or hides by "an hydrate of soda, and chloride of

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“ sodium, or a sulphuret of lime.” He prepares pelts for tanning by the aid of “an alkali or an acid, or both.” In tanning pelts he employs “an alkali with bark, sumac, trifolium, terra japonica, “myrabolams, valonia, or divi divi, or the extract of any of the “above, or tannin, or salt of metallic oxide, or an acid, alkali, “or neutral salt, either separately or in combination with each “other.” For blooming or coloring he uses “the acetate or any “other soluble salt of lead or chloride of barium, or any other “barytic salt, dissolved with any suitable coloring principle,” and afterwards he washes the leather over with “a solution of sul-“phate of soda or diluted acid.” He fills the pores of leather for the soles of boots and shoes with “prepared gutta percha, india-“rubber, gum, gum resin, oil, boiled linseed oil, tallow, bees’-wax, “gelatine, tar, pitch, resin in solution, cement, or paste, either “separately or in combination.” For upper leathers he uses “a “saponified or a partly saponified grease or dubbin, rendered “antiseptic or otherwise by a salt or salts of metallic oxides, “or an acid, either separately or in combination with each other.” He blackens leather with “a solution of a salt of the peroxide “of iron in combination with an alkali or an acid, or both.” He combines “shavings, strands, or other pieces or shreads of leather “or hide” with a variety of substances animal, vegetable, and mineral (which he enumerates); and by “masticating, kneading, “mixing, rolling, or pressing,” he forms therewith many articles, amongst which are mentioned round or flat ropes or bands, hose, and harness. He prepares “leather and gutta percha that can be “applied to boots and shoes in the same manner as gutta percha.” Finally, he uses the hide “in its raw state or partly manufac-“tured,” and, after putting it “into the required shape,” he continues “the process of manufacture.”

[Printed, 4d. No Drawings.]

A.D. 1853, January 28.—N° 209.

NOËL, CASIMIR.—“A new regulating bit.” “The mouth piece “has a slightly elevated cavity for the tongue, so as not to injure “the palate of the animal.” At the upper end of the cavity is a crescent (the principal feature of the new bit), of which the ends are rounded off in the shape of knobs or balls; “these, when the “bit is made to act slightly, press and titillate the membrane “which covers the roof of the mouth, and which immediately

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"cause the lower jaw to drop, and thus dispose the horse to submit without resistance to the action of the bit."

(Printed, &c. Drawings.)

A.D. 1863, February 11. - N° 308.

ROBERT REA, "Improvements in bits." This bit, called "Rea's controlling snaffle bit," is constructed to act on different parts of the mouth at the same time; it is composed of two or three bars to suit single or double reins. Each bar is in two parts, connected by a joint or ring which may be united by a centre bar or left independent of each other. The outside branches terminate at the top in rings for the attachment of the head stall; the upper bar is fixed to these branches, while the ends of the lower bar or bars pass through rings in them, and terminate in rings for the reception of the reins. When the bit is made with a third bar, the branches have a swivel joint between the second and third bars, to admit of the third being acted upon by the under rein.

(Printed, &c. Drawings.)

A.D. 1863, February 19. - N° 410.

JAMES WHIPPLE, "Improvements in fastenings for harness, and which are also applicable to other like purposes." These improvements are, first, a tug slide; second, the application of a galvanised iron tube in connection with the slide; third, a buckle or clasp on the same principle as the slide. The tug slide is composed of a metal frame, having an oblong opening on the surface and a square aperture near the remote end, and grooves inside as long as the opening, an oblong metal slide, and a spring, screwed at one extremity to the under side of the slide and having at the other, on the upper side, a stud, which, when the slide is pushed home, exactly fills the aperture. The stud is released by depressing the spring; for this purpose a hole is cut near the end of the slide. The aperture may be dispensed with, and the stud made to catch in a notch on the under side of the frame. A hook is fixed on the slide to aid in drawing it back. Eight pins or shanks on the under side of the frame "are passed through the leather cover of the galvanised iron tube, and rivetted over a bar or other metal tube placed inside the cover;"

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both tube and cover have an oblong opening "corresponding to " a similar opening in the frame." The buckle is made on the same principle as the tug slide, but shorter.

[Printed, 8d. Drawing.]

A.D. 1853, March 9.—N° 594.

BLACKWELL, SAMUEL.—"An improved strap or band for " connecting together certain parts of harness and saddlery, " applicable also to other purposes where straps or bands are used." The straps or bands are composed of leather combined with vulcanized india-rubber. The elastic part is made as follows:—Hemp or other suitable material is plaited into a tube; a mesh or flat piece of iron or wood is passed through, the width of the mesh being such as to contract the length of the plait, according to the amount of elasticity to be given to the band. The plait is enclosed in a piece of india-rubber, the bevelled edges of which are united by solution, such as is ordinarily used; the mesh is taken out, and the ends of the plait are secured to the rubber, which is then vulcanized. To connect such a band to a strap of leather, one end of the strap is sewed to one part of an iron link; the band is passed round the other part, and the ends are riveted to a bent plate with serrated edges; pieces of linen, &c., may be added to strengthen the fastening. A buckle is joined in a similar way.

[Printed, 10d. Drawing.]

A.D. 1853, March 9.—N° 595.

BLACKWELL, SAMUEL.—"Improvements in saddlery and " harness." Four inventions are described in this Specification. The first is a dumb jockey, the cross bars of which are of wood, and the parts round the horse's body of gutta percha; or the whole may be of gutta percha, or a combination thereof with other materials. The second is the application of elastic reins, crupper, and girth to dumb jockeys. The third is the application to harness of springs of india-rubber, either separately or in combination with string or webbing. For the manufacture of the plait of these springs, see the preceding abridgment, 594. To attach the springs to reins or harness, the plait is passed through the rubber tube and through pieces of metal on which rings or recesses are cut; there are also screw threads on the pieces whereon are screwed socket pieces, so that the rubber is held firmly between them. A

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spring hook is connected to one socket, and to the other a strap which is fastened to the bit. The fourth consists in constructing a curb bit for horses of gutta percha, either wholly or combined with leather and iron, and in so shaping the upper part as to prevent it from chafing the mane.

[Printed, &c. Drawings.]

A.D. 1863, March 10.—N° 612. (**)

COCHRANE, WILLIAM BRUNTON, and COCHRANE, WILLIAM MACKENZIE. "Improvements in girths or pads for retaining saddles in their places." These are "interposing a strap or piece of vulcanized India-rubber at the middle or central part of a pad, and two hooks in the upper surface, which prevent the saddle from going forward."

[Printed, &c. Drawings.]

A.D. 1863, April 11.—N° 610.

GIBSON, JOHN BOYD.—(*Provisional protection only.*)—"Improvements in saddlery and harness." "I use," says the patentee, "for a military saddle, the points bearing upon the horse's back, and place the hind fork on, to, or into the bars by a dovetail joint, instead of affixing it by glue, as heretofore; and in my framing or saddle-tree thus made I fix my seat, using no stuffing of any description. I also improve the bridle thus:—Instead of buckling the bridle to the bit, &c., I attach it by means of a metal apparatus of the form of a D, the upper end of the bit being turned down, giving the rider greater power in the management of the horse, and rendering the disconnecting of the bit from the bridle (when desirable) much easier and quicker."

[Printed, &c. No Drawings.]

A.D. 1863, April 27.—N° 1013.

JOHNSTON, JOHN HENRY.—(*A communication.*)—(*Provisional protection only.*)—"Improvements in apparatus for sustaining bodies in the water." The apparatus consists of a dress and a supporting medium; the former is made of any suitable impermeable material; it encloses the arms, body, and legs; it is tied round the neck and is fitted with gloves and boots. The latter is

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a zone stuffed with carded cotton and covered with any suitable material ; it is worn under the arms. This stuffing may be applied to horse collars and other harness, thereby enabling horses to cross rivers without danger.

[Printed, 4d. No Drawings.]

A.D. 1853, April 27.—N° 1020.

BRUCE, JAMES ANDREW.—“ Certain improvements in the “ construction of hayracks and other apparatus or apparatuses to “ contain fodder for horses and other cattle, and also in the “ method or methods of fastening horses or other cattle to pre- “ vent their overcasting.” The first invention claimed is a hay- rack, having a lid hinged to the frame and secured, when shut, by a nut or screw ; it has a moveable bottom which is counter- poised by a weight. The second is a manger of cast or wrought iron with the inside enamelled ; it is divided into two chambers ; the oats, beans, &c., are placed in the one (provided with a lid) and fall through a slot into the other. The third is a sieve ; the food, after being shaken therein, is passed through a network of iron inserted in front, and poured thence through a mouth or opening into the manger. The fourth is a headstall for preventing animals from overcasting ; it is composed of an oval ring of iron lined with leather, suitable straps attached thereto, and an oval rod (on the outside of the ring) round which two rings move freely. The rings are connected by straps and buckles to a rope working by means of a weight in a tube of iron or other material fixed within or to the stable wall.

[Printed, 10d. Drawings.]

A.D. 1853, May 5.—N° 1106.

BOWRA, MATTHIAS EDWARD.—“ Improvements in saddlery “ and harness.” This invention proposes, as a substitute for leather, pieces of canvas or similar material cut to the required size, coated with a solution of india-rubber or gutta percha, or the two combined, and placed in layers until a suitable thickness is obtained. This “ somewhat elastic body ” is covered with “ a “ solid gum,” so as to present the appearance of enamelled leather. Or a piece of canvas or leather is placed between two pieces of india-rubber, vulcanized or not, and the whole is “ compelled to “ adhere and form a solid ” by any suitable means.

[Printed, 4d. No Drawings.]

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A.D. 1853, May 30.—N^o 1326. (**)

WELLS, GEORGE.—(*Provisional protection only.*)—" The combination of materials for making a more perfect fabric for suction hose, mill bands, harness, and for all similar purposes to which the same may be applied."

It consists in the application of " india-rubber and gutta percha combined for the covering of woven suction hose, made of any fabric to render them air and water tight, and also the application of galvanized or tinned spring wire lining to such hose; also the application of india-rubber and gutta percha to all description of woven mill bands, engine bands, harness, and woven articles of the like description."

[Printed, 4d. No Drawings.]

A.D. 1853, June 30.—N^o 1576. (**)

RICE, WILLIAM.—" Improvements in harness for horses and other animals, and in the manufacture of springs for the same." These are, first, " in the application or addition of springs to certain parts of harness, to the traces, either at the one end next the hame, or at the other end next the splinter bar, or other part of a carriage to which traces are usually attached or made fast, to the back or bearing chain or strap, and to kicking straps, by means, in each case, of suitable hooks, eyes, buckles, or other convenient fastenings." Second, constructing springs for harness " of a compound or sliding metal framing, cased or otherwise, and of one or more blocks or pieces of vulcanized india-rubber, or of steel in a helical or other form, and of suitable hooks, eyes, or other fastenings for securing or using the same, and so arranged, disposed, and combined together that, on the force of a horse or other animal being applied, the india-rubber or the steel will be compressed, and, on such force ceasing, will return to the original form or shape."

[Printed, 6d. Drawing.]

A.D. 1853, July 26.—N^o 1756.

MONEY, ALFRED WALTER.—(*Provisional protection only.*)—" An improved bridle." A strap is placed over the nose; the ends are brought round under the jaw, run through rings or loops attached to the strap on each side of the jaw, and are then taken

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through the rings of the snaffle and buckled to the rein. By pulling the rein respiration is partially stopped, and the horse is more readily checked. "When a double bridle is used, a short " strap connects the rein to the curb bar, thus dispensing with " the double rein."

[Printed, 4d. No Drawings.]

A.D. 1853, September 30.—N° 2236.

WILLIS, JAMES.—"Improvements in gig harness." The saddle is constructed with a moveable cantle and seat, joined to the tree by screws and by the bearing hook; the flaps are cut in one piece; the back band is covered by the skirts; the facing is stitched to the flaps; the padding is made separately, and has brass nuts secured in it, to which are fixed the tarrants and fastening screws, the latter passing through the flaps and tree; the padding is stitched to the flaps at the lower part. The collar is made with a metal facing or frame in two parts, jointed at top (or it may be at bottom), and united at the other end by a piece of metal, the connecting bolts sliding in horizontal slots in the frame; the hames are fastened to the frame. The tug and other buckles are formed with a tongue, which slides "longitudinally " through the crossbar," and is bent "at right angles to the strain " on the tug." The buckle is sometimes made with two cross-bars.

[Printed, 6d. Drawing.]

A.D. 1853, October 11.—N° 2324. (* *)

WILKINSON, WILLIAM.—(*Provisional protection only.*)—"Im-
" provements in bands, belts, and straps." It consists in manu-
" facturing bands, belts, or straps, "for machinery, mine straps,
" traces, bridles, reins, girthings, &c., by interposing one or more
" layers of woven wire cloth produced either in the ordinary
" wire-weaving machinery, or in warp or other machinery
" capable of weaving wire, between flat strips of gutta percha or
" gutta percha combined with other materials, and then sub-
" jecting the same while in a warm state to pressure, so as to
" cause the gutta percha surfaces to unite through the interstices
" of the wire cloth, so as to enclose the wire cloth between them;"
or employing "cement to cause the surfaces to adhere. Instead
" of wire cloth, I also use perforated metal, whether copper, zinc,

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“ sheet iron, galvanized or otherwise, &c., or cloth composed wholly of fibrous materials, or partly of wire and partly of fibrous materials. I combine, where necessary, two or more of the said modes of manufacturing in the same band, belt, or strap, and make the same of any thickness that may be required.”

[Printed, 4d. No Drawings.]

A.D. 1853, October 12.—N° 2339.

MORISON, JOHN, and HURN, DANIEL.—“ Improvements in the manufacture of nose bags.” The fabric employed is made from jute, hemp, hair, manilla, or cocoa-nut fibre. The bag is woven without seam and “ with a selvaged opening.” The lower parts are rendered waterproof by a coating of gutta percha or other plastic material. The bag is fitted with the customary straps and buckles, and, by attaching loop leathers at the mouth, it may be used as a game bag.

[Printed, 6d. Drawing.]

A.D. 1853, October 19.—N° 2415.

BARTON, JAMES.—“ Improvements in fittings for stables.” A hay box is substituted for the rack; beside it is a manger; and beside this a trough provided with a branch pipe, which leads to another pipe having two stop-cocks. The box is of iron, plain or corrugated, perforated with holes to ventilate the hay, and made without a back, the wall serving the purpose. The manger and trough are of iron, and enamelled, if required. The three are formed with flanges, and screwed or otherwise secured to a cast-iron plate or frame. A hollow metal guard roller is mounted on bearings at the ends of the frame, and attached to the roller are pulleys for the weighted halter ropes, chains, or straps, to run over. Other pulleys “ are mounted in brackets fixed to the wall, “ or to posts at the back of the fitting, so that the fitting is not “ liable to be displaced by any strain on the halter ropes.”

[Printed, 6d. Drawing.]

A.D. 1853, October 21.—N° 2429.

JOHNSON, JOHN HENRY.—(A communication.)—“ Improvements in apparatus for sustaining bodies in the water.” Provisional protection was granted for this invention on 27th April

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1853. The details given in the Specification do not differ in any respect from those abridged in N° 1013, to which the reader is referred.

[Printed, 6d. Drawing.]

A.D. 1853, November 11.—N° 2610.

BANNER, EDWARD GREGSON.—“ Improvements in saddlery “ and harness.” That part of the collar which rests upon the shoulders is made of india-rubber waterproof canvas or any elastic or semi-elastic material; it is inflated and forms a yielding cushion. A single rein is substituted for a double one in riding or driving by attaching one extremity of a tubular piece of vulcanized india-rubber to each snaffle ring, and the other to a ring at each rein end; a chain connects each rein ring to the curb bit ring. A slight pull acts on the snaffle only, a sharper one on the curb. To prevent a horse from ‘getting the bit in his jaws,’ an elastic cord is passed over the nose and hooked to the snaffle ring; the cord is united to the nose strap by an elastic loop. One end of the india-rubber may be fixed to a spring eye or hook; the rubber may serve as the spring of the moveable part, or a metal spring may be used. The other end may be bound by a piece of cord or twine over the screw thread of a metal holder.

[Printed, 6d. Drawing.]

A.D. 1853, December 1.—N° 2799. (* *)

JOHNSON, JOHN HENRY.—(*A communication from Charles Eugène François Guibal.*)—“ Certain applications of vulcanized “ india-rubber.” These applications are to “ curry combs, brushes “ of all kinds, and artificial cloth. The caoutchouc is mixed “ with a composition of sulphur and oxyde of zinc, and formed “ into a sheet, which is then moulded by suitable moulds into “ the form required, being heated by steam stoves or other “ means. In manufacturing curry combs, the india-rubber is “ moulded on one side into a rough surface, and the other side “ left plain for the attachment of a stiff and ridged handle or “ back, which is fitted with a strap to secure it to the hand.” “ The stiffening material may generally be composed of gutta “ percha mixed with a small proportion of caoutchouc.”

[Printed, 6d. Drawing.]

1854.

A.D. 1854, February 1.—N° 251. (* *)

GUEST, WILLIAM.—“Improvements in machinery for making “whips, parts of which improvements are also applicable to the “manufacture of braids and wire nets.”

The improvements in the machinery for making whips “have “reference to an improved spindle and arrangement of the “spindle used in braiding machinery for making whips, and “consist,—

“First, in reducing the number of holes required to be threaded, “and in simplifying the act of threading.”

“Second, in arranging the bobbins and weights to rise and fall “together, instead of the weight rising and falling by itself.”

“Third, in adding extra pairs of spindles so arranged as to be “brought into and out of action” as required by the work made, “thus obviating the necessity of altering the circle of the machine, “as is now done, and by means of which a considerable saving “of time is effected.”

“Fourth, in arranging the spindle with the bobbin stationary, “and at the same time being able to arrange the weights or “threads (in consequence of reducing the number of holes to be “threaded) to work outside instead of inside the spindle.”

The improvement “as applicable to the manufacture of braids, “consists in the use in braiding machinery of the improvements “of the spindle herein-before described.”

[Printed, 10d. Drawing.]

A.D. 1854, March 1.—N° 499. (* *)

GOTTUNG, JOHN BAPTISTE.—(*A communication.*)—This invention consists in taking the feathers of the peacock and other birds, splitting the stems thereof into strips about $\frac{1}{8}$ of an inch broad, paring away the pithy portion, and working or stitching the strips by needles or machinery through leather, so as to produce embroidered work suitable for harness, table mats, shoes, slippers, &c.

[Printed, 4d. No Drawings.]

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A.D. 1854, March 13.—N° 600.

LATCHFORD, BENJAMIN.—“ Improvements in saddlery or “ harness.” The first invention is to effect a ready disengagement of the bit from a horse’s mouth. The upper part of the bit is made on each side in the shape of a flanged hook ; it is attached to the cheek strap by a double loop of metal, the lower loop being of an oval form. The second is to free the foot from the stirrup in case of a fall. Near the bottom of each leg of the stirrup is fixed a plate, in which is cut a curvilinear groove or slot. A tread piece, having a flange in front and a pin on each side, fits on to the ordinary foot plate, the pins entering the slots. The foot of the falling rider causes the tread to revolve and fall out.

[Printed, 8d. Drawing.]

A.D. 1854, March 30.—N° 725.

LUCEVILLIARD, JEAN FRANÇOIS.—“ Improvements in fastening or sustaining to the body the various parts or objects of “ clothing, equipment, and harnessing.” The patentee manufactures “ elastic bands, having caoutchouc threads woven in “ them, and having also a frilled or plaited or full border on one “ or both edges.” The border is sewn to the article which is to be sustained. When the article is a looped or knitted fabric, the border is not necessary : threads of caoutchouc are introduced into the fabric during its manufacture, “ so that the elastic band, “ frilled edge, and article of clothing, are all made in one piece.” The invention is applicable to “ horse cloths, saddle cloths, and “ other articles of harnessing or clothing for animals.” He describes his method of weaving his “ elastic frilled bands,” and “ a portion of an ordinary circular loom or knitting frame,” to which is added an apparatus for introducing threads of caoutchouc into his looped or knitted fabrics.

[Printed, 8d. Drawing.]

A.D. 1854, May 23.—N° 1144.

JENKS, FREDERICK, and BROWN, THOMAS.—“ An improvement or improvements in saddletrees.” This invention consists in using papier mâché instead of wood in the construction of saddletrees. If sheets are used, they are pressed into moulds or built upon a block ; if pulp, the ordinary method is employed of making articles of the said material. Layers of linen or other

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fabric may be introduced, and the iron work is fixed on, either afterwards or during the process of moulding.

[Printed, 4d. No Drawings.]

A.D. 1854, May 29.—N° 1189.

NORTHEN, WILLIAM.—"Improvements in the manufacture of "mangers and troughs for stables." These mangers and water troughs are made of earthenware: the patentee does not confine himself to any particular mode of manufacture. The materials, which he prefers to use, are the best Devonshire and Dorsetshire clay mixed with due proportions of sand and fine dust produced from ground broken pottery, from which is obtained "white stone-ware with a good glaze." They are fitted into a wooden frame or mounted in standards. The manger may be divided by a partition, and the trough may be furnished with a water service and a plug at bottom for the escape of the water.

[Printed, 6d. Drawing.]

A.D. 1854, July 6.—N° 1483.

FONTAINE MOREAU, PETER ARMAND LE COMTE DE.—(*A communication.*)—"Certain improvements in apparatus for breaking-in horses." The apparatus consists of a surcingle surmounted by an iron rod of about fifteen inches in length, "and at an inclination of about 4 inches towards the head of the horse." On the rod are four (more or less) cross bars, having a ring at each extremity. During the breaking-in, "the reins are passed alternately through the rings as required for the work of the horse."

[Printed, 6d. Woodcut and Drawing.]

A.D. 1854, July 7.—N° 1500.

COTTAM, HENRY RICHARD.—"Improvements in horse mangers." The patentee employs a guide bar or a guide case for the weight attached to the end of the halter, instead of allowing it "to hang free and swing." This guide "can be fixed to the manger plate or stall diagonal or vertical." If a bar is used, the weight has two holes in it, one for the halter end, the other for the guide bar; if the guide is a case for the weight to slide in, it is made of cast or wrought iron, straight or curved, and fitted at top with rollers. The guide may consist of rollers or

rings only, fixed to the front and back of the manger plate. The patentee claims also "the casting in one piece of corner manger plates, to which may be attached the manger, rack, and water trough, or manger and rack only."

[Printed, 1s. Drawings.]

A.D. 1854, July 18.—N^o 1579.

CATO, PETER.—(*Provisional protection only.*)—"An improved manger or trough for holding the provender of horses, cattle, and other animals." It is made of earthenware or stoneware, the inside being so formed that "the animal may be able without difficulty to gather up all the provender that may be placed therein." It may be mounted in a frame, or be built into the stable wall, or be simply secured to a shelf.

[Printed, 4d. No Drawings.]

A.D. 1854, August 2.—N^o 1698.

GRIFFITHS, JAMES.—"A new or improved lever bit for horses." On the cheeks of the bit are levers, turning on pivots at the ends of the mouthpiece, having rings at bottom for the reins, and connected at their upper extremities by a solid or chain curb. Or the upper parts of the levers may be made with hooks or stops, to which a shifting chain curb is attached. The levers may be made of various forms and sizes, and the curb either fixed or moveable.

[Printed, 6d. Drawing.]

A.D. 1854, September 9.—N^o 1974.

CLOWES, THOMAS.—"Improvements in muzzles for horses, or apparatus to prevent horses from biting or sucking their cribs or mangers." The body of the muzzle is of leather or other suitable material, formed with apertures for freedom of respiration. In the lower portion is fitted a light metal frame across which a perforated bar is fixed. Beneath this bar is a bar, moveable in a vertical direction, and furnished with a number of prickers; the bars are connected by two screws which allow "of a slight vertical play" between them. Two blade springs are fastened to the under side of the upper bar, which push down the lower bar and shield the prickers when not in use. Two small projections protrude from the frame beyond the lower bar to prevent it from

being acted upon "when the horse is eating off a flat or hollow surface of a greater width than the distance between such projections." To stop a horse from feeding, a perforated plate is inserted into the frame. A curved bar with a set of prickers on it is fastened into the back of the muzzle so as to act upon the under jaw when the horse is sucking his crib; the prickers are shielded by a perforated bar joined to the other by screws working in slots in the perforated bar.

[Printed, 6d. Drawing.]

A.D. 1854, September 23.—N° 2056.

McNAUGHT, GEORGE.—"Improvements in saddletrees." The object of this invention is "to secure increased strength together with economy in the material used and the labour required" in the manufacture of saddletrees. The head piece, side pieces, side bars, and cantle, are made separately, and from pieces of wood "cut to the necessary thickness in a flat state," and, after being steamed or otherwise prepared, bent or twisted to the required shape by means of screw presses or other suitable machinery. The several parts are glued together or otherwise connected, and the corners are filled up with separate pieces. This mode of manufacture is applicable to every sort of saddletree.

[Printed, 6d. Drawing.]

A.D. 1854, October 23.—N° 2254.

SAVAGE, GEORGE.—"A new or improved singeing lamp." The body of the lamp is a flat or wedge-shaped vessel, divided into two compartments, one the wick chamber, the other a reservoir for naphtha or other combustible liquid, the communication being by means of a stop cock. The handle is hollow and opens into the reservoir by forked extremities. For the purpose of filling the reservoir and handle, the latter has at its end a screw cap. There may be a stop cock in the reservoir, opening outside the lamp, to admit air. For a more rapid supply to the wick, two stop cocks may be employed. In this arrangement, the extremity of the handle need not be forked. The reservoir and handle may be filled through a feeder introduced into the former. The screw cap is then dispensed with, and the handle does not project so far into the reservoir.

[Printed, 6d. Drawing.]

A.D. 1854, November 9.—N^o 2376.

PALLING, FRANCIS.—(*Provisional protection only.*)—“Im-
“ provements in the means of preventing horses running away
“ upon taking fright or other causes.” This check is applicable
to both carriage and saddle horses. It is constructed thus:—To
about the middle of the belly band or girth a strap is attached, to
which are connected other straps formed with loops which pass
round the fore and hind legs. These straps are provided with
buckles or other fastenings, to allow of their being tightened or
slackened.

[Printed, 4d. No Drawings.]

A.D. 1854, November 10.—N^o 2394.

RIMMEL, EUGENE.—(*A communication from Hippolyte Magen.*)
“ Improvements in combining matters to be employed in coating
“ fabrics and leather, and for other uses, in substitution of india-
“ rubber.” The directions and proportions “ for the first layers
“ for common fabrics ” are as follows:—Dissolve in boiling rain
water or distilled water one pound of powdered alum, three ounces
of sulphate of iron, and, by preference, one drachm of cyanuret of
lead, and one quarter of a drachm of cyanuret of manganese. Add
two pounds eight ounces of soap made of seal oil and potash.
“ The mixture is to be washed with rain or distilled water and
“ evaporated to the consistency of paste.” Then add three
pounds of linseed oil boiled until it becomes thick, two pounds of
linseed oil slightly boiled, and nitric acid “ one-sixtieth part of
“ the weight of the compound ; ” the thickened oil is added
whilst it is boiling. “ For the last layers and for superior fabrics,”
boil together two pounds of linseed oil, three drachms of tannate
of lead, three drachms of chloride of manganese, and three drachms
of powdered alum, until the composition becomes thick. When
cold, add one-fiftieth part of its weight of nitric acid. For a
“ varnish for real and artificial leather,” mix one part of the
second mixture with three parts of turpentine or benzene, “ into
“ which are previously dissolved or mixed the colors intended to
“ be used.” For a “ more solid preparation,” melt together two
parts by weight of the first mixture, one part of sulphur, and one
part of tar, and “ evaporate to the degree of solidity required.”
The compounds are applied to fabrics “ by means of an upright
“ knife above a roller, on which the stuff passes tightly stretched.”
The number of layers varies according to the degree of finish

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being acted upon "when the horse is eating off a flat or hollow surface of a greater width than the distance between such projections." To stop a horse from feeding, a perforated plate is inserted into the frame. A curved bar with a set of prickers on it is fastened into the back of the muzzle so as to act upon the under jaw when the horse is sucking his crib; the prickers are shielded by a perforated bar joined to the other by screws working in slots in the perforated bar.

[Printed, &c. Drawing.]

A.D. 1854, September 23.—N° 2056.

McNAUGHT, GEORGE.—"Improvements in saddletrees." The object of this invention is "to secure increased strength together with economy in the material used and the labour required" in the manufacture of saddletrees. The head piece, side pieces, side bars, and cantle, are made separately, and from pieces of wood "cut to the necessary thickness in a flat state," and, after being steamed or otherwise prepared, bent or twisted to the required shape by means of screw presses or other suitable machinery. The several parts are glued together or otherwise connected, and the corners are filled up with separate pieces. This mode of manufacture is applicable to every sort of saddletree.

[Printed, &c. Drawing.]

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[Printed, &c. Drawing.]

1855.

A.D. 1855, February 7.—N° 294.

NEWTON, ALFRED VINCENT.—(*A communication.*)—“An improved construction of spur,” capable of being fitted on to boot heels of various diameters. The arms of the spur, provided with jaggs for piercing the leather of the heel, are jointed by pins, on which they move freely, to the stem which carries the rowel. On the stem is a screw thread to receive a nut, which bears against the inner ends of the arms and contracts their span. The nut is concave, to avoid coming into contact with the ears, which project laterally from the end of the stem for the reception of the joint pins. In a modification, the arms have ears shaped to form a cone seat for a threaded wedge, which works in the stem, and in its descent presses laterally against the ears.

[Printed, 6d. Drawing.]

A.D. 1855, March 5.—N° 485.

DAWSON, JOHN.—(*Provisional protection only.*)—“An improved invention in saddles.” The saddle is made capable of fitting any horse, by affixing to the saddle-tree metallic plates, which can be instantly adjusted to the horse’s back by screws, causing them to expand or contract.

[Printed, 4d. No Drawings.]

A.D. 1855, March 9.—N° 539.

SMITH, WILLIAM.—(*A communication.*)—“Safety harness,” enabling the driver immediately to release the horses, disengage the whole of the connecting portions, and, moreover, to guide the carriage by the pole until it stops. The parts to which mechanism is applied are the saddle, bearing hook, girth, hames, and driving reins. One side of the saddle is furnished with a box, from the back of which projects one end of a curved arm for the attachment of the safety rein. The other end of the arm is connected with levers, arranged to act upon the girth and bearing hook. The girth is lengthened or shortened by a perforated rack and a spring with pegs thereon: the rack enters a sheath divided into two parts, which are so united by levers and their appendages that, when the safety rein is pulled, the parts separate. The bearing

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hook has one part moveable and containing a bolt encircled by a spring; this bolt is drawn by the same pull of the safety rein. The rings of the harness are so connected that the same pull opens the lower one, which is in "two articulated portions." The driving reins are in two parts united in sheaths (the upper one being within reach of the driver); he disengages them by drawing the upper sheath towards him: "this mode of separating the" reins is equally applicable to the traces, if judged suitable." Details are given in the Specification of the mechanism of the various parts, and of that for preventing them from acting when not required. For facilitating the operation of mounting the harness, or taking it to pieces, or unfastening the traces when a horse falls, spring rocks are substituted for buckles: the trace passes into a box, under which is fixed a spring with pegs thereon corresponding to the holes in the trace. The use of the collar is altered by making it in two parts; the upper end of one passes into the other; the two are joined by a perforated iron rod and screws. When there are several horses, the point of junction of the several safety reins should be near the driver, that he may readily "disengage only such horses as are requisite."

(Patent, &c. &c. Drawings.)

A.D. 1866, April 10. - N° 876.

JOHNSON, JOHN HENRY. (A communication.) "Improvements in the manufacture of articles of hard india-rubber or gutta percha, or compounds thereof, and in coating or covering articles with the like materials." Among the articles (a list of upwards of seventy is given in the Specification) proposed to be made of the above materials, are pistol-holsters and whips. For the mode of preparing the materials and for the different methods of manufacture, the patentee refers to the Specifications of Thomas Hancock's Patents, dated 21 November 1843, and 19 March 1846; of Charles Hancock's, 12 January 1846; of William Brooketon and Thomas Hancock's, 19 November 1846; of William Johnson's, 18 August 1854; and to his own, 1 April 1854 and 7 March 1855. He proposes also "to cover with pure india-rubber or gutta percha metals, wire, or iron tubing, whether for telegraphic purposes, or for harness, or carriages" &c.; to effect this, "the articles may be plunged into a solution of india-rubber or gutta percha formed by the carburet of

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“ sulphur, or into any other solution of india-rubber or gutta percha, and then vulcanized hard.”

[Printed, 4*d.* No Drawings.]

A.D. 1855, April 27.—N^o 948.

COIGNET, ROBERT PAUL.—“ Certain improvements for rendering tissues waterproof.” The following are the ingredients and their proportions used in the composition of the coating, but the patentee reserves to himself the right of modifying them: linseed oil, 100 parts; thick oil of tar, 25; galipot oil, 5; mineral pitch, 2; white resin, 5; Norwegian tar, 5; mutton suet, 10; oil of schistus, 4; smoke black, 1; amber earth, 3; litharge, 2; alum, 2. The fatty oils and resins are thoroughly melted together, the litharge is added by degrees, and the whole is stirred up; when it has remained on the fire for about half an hour, “ at a temperature approaching ebullition, the other substances are incorporated with it in the following order:—alum, amber earth, and smoke black, the whole being completely mixed and stirred by means of a wooden spatula.” The composition is applied hot or cold, according to the purpose for which the fabric is intended, and either by immersion or with a brush. Fabrics of flax, hemp, cotton, and other textile materials, thus coated, may be substituted for leather for harness padding and carriage work.

[Printed, 4*d.* No Drawings.]

A.D. 1855, May 16.—N^o 1101.

LATHAM, WILFRID.—“ Improvements in cutting the terry or pile of certain textile fabrics used for saddle covers,” which fabrics are known in the South American trade as pellones. To carry his invention into effect the patentee uses a rough-edged knife or other instrument, and passes it in a zig-zag direction, “ with a lateral or sideway motion,” along the side of the board which is inserted to raise the terry or pile, “ so as to rub or chafe the threads asunder in unequal lengths.”

[Printed, 4*d.* No Drawings.]

A.D. 1855, June 5.—N^o 1277.

GEDGE, JOHN.—(*A communication from F. V. Vauconsant.*)—(*Provisional protection only.*)—“ Improvements in combs called ‘ curry combs.’ The band (without hammer or claw head)

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between the ends of the blade handle; it is strongly riveted to the back plate, and serves "to protect and keep in position the blade " comb when the curry comb is knocked against any hard sub- " stance to rid it of the hair and dust of the animal submitted to " its operation." "The handle is fixed or let in in the ordinary manner.

[Printed, &c. No Drawing.]

A.D. 1866, June 13.—N° 1364.

COFFHAM, George. "Improvements in hay racks and harness " brackets." A moveable bar for the descent and collection of the hay seed is applied to the lower part of the rack; it is made to slide in and out under the rack, but the arrangement may be varied. "The bar or upper part of the harness bracket is made with a hinge or joint; the part, on which the bar rests when down, forms a hook for harness when the bar is raised.

[Printed, &c. Drawing.]

A.D. 1866, June 20. N° 1404.

HICHTH, Daniel, HONKAWA. (A communication from George Elliott and Samuel Hunt.) (Practical protection only.)—"An " improved life-preserving harness." The harness are held together at top by a spring bolt passing through a rule joint, and at bottom by a strap with slugs passing over the curved ends. "The saddle-tree is made in two parts, held together by a riveted pin; the two sections of the saddle are united by a pointed tongue and groove, each section having a portion of the copper loop attached to it. "The tongs are arranged to drop out when the sections of the saddle-tree are parted. A cord is attached to the spring bolt, and a branch thereof to the pin; the end of the cord is fastened to any convenient part of the vehicle. When the cord is pulled the harness fly apart at the top, and drop loose at the bottom. The saddle-tree comes apart, and the horse goes off, carrying with him the collar, bearing and driving reins.

[Printed, &c. No Drawing.]

A.D. 1866, July 11.—N° 1555.

HICKS, J. D., CHARLES FARNHAM.—"Improvements in the " manufacture of saddletrees." "The trees are made of a combi- " nation of tannagegelatine, sulphur balsam, gum resin, and gutta

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percha, with a suitable solvent; india-rubber or india-rubber solutions may be added. The ingredients, when properly mixed and melted, may be used alone or spread on one or more layers of canvas: sheets of cork or shaped cork may be enclosed in the canvas and composition. A plastic compound is roughly formed by hand or pressure into the shape of a saddle-tree, and introduced whilst hot into a mould (of metal by preference), and well pressed therein; when set, it is removed and dried.

[Printed, 4d. No Drawings.]

A.D. 1855, July 21.—N° 1658.

TILDESLEY, JAMES.—"An improvement or improvements in "curry combs." The body of the comb is made in the ordinary manner; but the handle, which is of metal and of any shape convenient for the hand, is attached to the back, "in a line trans- "versely with, instead of parallel to, the lines of the teeth." The handle may be permanently fixed, or so arranged as to be turned down when not in use.

[Printed, 6d. Drawing.]

A.D. 1855, July 27.—N° 1714.

WOODS, GEORGE.—"Improvements in pack saddles." The sides of the saddle are formed of two square pieces of leather, lined with fibre mats and connected by two pieces of webbing; these are sewed to two pieces of leather which are sewed on to the sides. On each side are fastened two pieces of wood, to keep the load from the back of the animal; and to the end of each piece is hinged an iron bar, which, when not required to support the load, is turned down into a recess in the wood. Straps for securing the load are joined to rings on the webbing and pass through rings on the sides.

[Printed, 6d. Drawing.]

A.D. 1855, August 3.—N° 1765.

JOHNSON, JOHN HENRY.—(*A communication from Nicholas Ernest Theophile Petin.*—(Provisional protection only.)—"Improvements in the manufacture of metallic waterproof fabrics or "materials, and in the application thereof." The foundation of the fabric is metallic cloth or wire gauze. "For a transparent "fabric," it is steeped in or coated with a mixture "composed of

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" unctuous oils boiled with lard, of eau-de-coutchouc, of colledion, " of copal, of the gum of essential oil, of turpentine, or of strong " glue." For " an opaque waterproof fabric," it is coated with gutta percha, bitumen, or tar. Or the transparent fabric may be covered " with a coating of oil paint, if it is to be even and smooth, or with sand " if it is desirable to render it fireproof." Hardwood, powdered glass, mother-of-pearl, metal or metallic products, mineral, vegetable, and animal substances, hair, fabrics, paper, and veneering, may be employed. The fabric so prepared is placed in a stove " to fix the substance of which it is composed, and " afterwards it is exposed to the air to dry thoroughly." Each coating must be allowed to dry before another is applied. The fabric is to be used in " the construction of sword cases, helmets, " articles of artillery, decorations for rooms, parts of carriages, " ornaments, &c."

(Printed, &c. No Drawings.)

A.D. 1855, August 15.—N° 1852.

JOHNSON, JOHN HENRY.—(A communication from Monsieur Nata.)—(Provisional protection only.)—"Improvements in reins." The patentee calls his reins " rigid-flexible." They are intended for riding, although the principle may be applied to driving reins. " The improvement consists in adapting a thin steel rod or bar " to each of the straps of the reins, the bar extending from the " bit to a considerable distance along the bridle." By the aid of such a bridle a greater control is obtained over the horse, as the reins may be used either " by pulling or pushing."

(Printed, &c. No Drawings.)

A.D. 1855, September 27.—N° 2153.

GUILLIGET, ANAKAGOR KRAMINONIAN, and GUILLIGETTE, Omerien Lotten.—"A new system of bridle for leading and over- " ruling fiery horses." By attaching the following apparatus to each strap, which joins the bit to the headstall, the rider or driver is enabled to shut out light from the horse's eyes, and air from its nostrils. A rod is stayed on a metal band by means of bearings; round the rod is a coiled spring, one end of which is so adjusted as to allow the rod to return to its position when the action on it ceases. The rod is provided with a gaggle, a low bearing at its end a buffer or neutral plier, and a small arm fitting

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into an opening at one end of a lever, "which is made to move skew under the horse's head, so as to act in like manner on each side at once." To this lever is fastened a thong or strap. The lever may be so placed that the thong will pass over the horse's forehead; and the apparatus may be so arranged that the goggles and pincers shall act separately. The bit may be made to form part of the band.

[Printed, 10d. Drawing.]

A.D. 1855, October 5.—N^o 2228.

HILL, RICHARD HENRY.—(*Provisional protection only.*)—"A jointed back band for gig or brougham harness, affording instant relief to fallen horses, and always inclining to the draught of the traces."

The back band is made in three separate pieces, and so connected on either side of the saddle with a screw rosette, that, in the event of a horse falling down, it may be readily released by unscrewing one or both rosettes. "By this invention also the draught always inclines to the traces, and prevents the tearing and injuring the skirt of the saddle, and preserves the shape of the tug loop."

[Printed, 8d. Drawing.]

A.D. 1855, November 5.—N^o 2480.

GUILLEMOT, MAURICE.—(*Provisional protection only.*)—"Certain improvements in stopping horses." This invention consists of two pieces placed almost horizontally, made with a hinge, and two upright pieces as in ordinary bits; each of these is kept in its proper position by a bolt spring, which serves to open them." To each is attached a small stopper corresponding to the nostril of the horse. "In order to make these pieces act, they are furnished at the ends opposite the stoppers with rings, which are placed under the lower jaw, through which a rein is passed."

[Printed, 4d. No Drawings.]

A.D. 1855, November 13.—N^o 2553.

WILKINSON, JOHN, the elder, and WILKINSON, JOHN, the younger.—"Improvements in communicating a shape or configuration to folded cloths and other manufactured fabrics."

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amongst them, to saddle cloths. These improvements are accomplished by means of a tentering apparatus, two of which are required. The frames and moveable bars, with the hooks fixed on the inside, are of the ordinary structure. The "shape or former" contains "several repeats of the figure designed to be moulded;" it rests in triangular bearings fixed to the uprights. The fabric is placed on the shape, secured at its opposite edges to the hooks, tightly stretched by means of the bars, and held there until dry, when it will be found "to have taken a permanent set, corresponding exactly to the profile of the former."

[Printed, *ed.* Drawing.]

A.D. 1855, November 20.—N° 2615.

FONTAINE MOREAU, PETER ARMAND LE COMTE DE.—(*A communication.*)—"Improvements in apparatus for preventing "horses from running away." For this purpose the patentee has constructed a metallic blinker which may be adapted to any kind of bridle. The blinker is made in two parts hinged together, the moveable part being acted upon by an internal spring. A strap, fixed to this part and passing through rings on the frontal and headstall, serves to regulate its action. "A spiral spring may be "adapted and concealed in the hinge."

[Printed, *ed.* Drawing.]

1856.

A.D. 1856, January 3.—N° 14.

HAINES, FARNHAM.—"The deadening of sound, and the prevention of vibration and concussion in connection with machinery, gun and mortar boats, and general ordnance, and "other purposes." The patentee applies cork, simple, prepared, or compressed, alone or in conjunction with other materials, to the above purposes, to railway and other carriages, surgery, flower pots, shoeing of horses and cattle, knee and other pads, saddle-trees, and horse collars. It is shaped or moulded into the required form for saddle-trees; the collars are padded with cork stuffing.

[Printed, *ed.* No Drawings.]

A.D. 1856, January 5.—N° 49.

THÉRÈSE, LOUIS AUGUSTE.—(*Provisional protection only.*)—“ Certain improvements in harness,” which consist in a new construction of buckle, saddle bow, and pad. The tongue or tongues of the ordinary buckle are replaced by fixed metal studs, and holes are punched in the traces, &c., to correspond thereto. The saddle bow and pad are made of stout leather bent upon shapes to the required form.

[Printed, 4d. No Drawings.]

A.D. 1856, January 28.—N° 231.

DESTIBEAUX, JEAN HECTOR.—“ An improved waterproof fabric.” Coatings, similar to those used in preparing glazed leather and skins, are applied to a cotton or linen fabric, thereby rendering it suitable for boots and shoes, covers, military equipments, horse trappings, &c. The composition, spread on both surfaces of the fabric, contains “ boiled linseed oil, rendered siccative by litharge, mixed with calcined umber and lampblack, and “ liquified when found necessary by the addition of a small quantity of essence of turpentine.” The coating is laid on with a spatula; or a machine is employed for the purpose, consisting of two stretching drums, a stretching roller, a hopper (containing the composition) with spatula attached to it, a drying stove, and a vibrating cylinder or segmental block for smoothing. The glaze is composed of the same ingredients with the addition of a considerable quantity of essence of turpentine. The coated fabric is polished with pumice stone, and varnished with a mixture of boiled linseed oil, litharge, calcined umber, powdered Prussian blue, and dissolved caoutchouc. The varnish must be allowed to dry in a stove for from 48 to 60 hours, the heat being gradually raised from 85° to 122° Fahrenheit, after which the fabric is to be exposed to the sun. “ Various colors may be produced by substituting suitable colors for lamp black after laying on the last “ coating but one;” in this case, a white varnish is employed, consisting of linseed oil mixed with sulphate of zinc, and dissolved copal resin. The patentee gives the proportions which he prefers to use, but does not restrict himself thereto, nor “ to the use of the drying ingredients mentioned.”

[Printed, 8d. Drawing.]

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A.D. 1866, February 19.—N° 417.

GIBDIE, JOHN.—(A communication from F. H. Loubatieres.)—
(Provisional protection only.)—“Improvements in curry combs.”
The combs are made of leather, and the rows to receive the teeth
are so perforated “that pointed iron screws may be inserted
therein and screwed out (when worn by friction) simultaneously,
“so that a renewal of the scratching surface of the comb will be
“ continual, until the whole is worn out.”

[Printed, &c. No Drawings.]

A.D. 1866, March 4.—N° 546.

POTTER, HOWARD.—*(Provisional protection only.)*—“The
“application of a new material or materials for the manufacture
“of brushes and for other purposes, and for improvements in the
“manufacture of street scavengers, and similar brooms or
“brushes.” The new material is the rib or spine running through
the middle of the leaflets of certain suitable palms. The improve-
ments refer to the mixture of the raw material “with those now
“in use, or hereafter to be applied” in the manufacture of brooms
and brushes. These ribs or spines may be made into baskets, and
may be used as a substitute for whalebone and cane in riding
whips.

[Printed, &c. No Drawings.]

A.D. 1866, March 20.—N° 767.

POWELL, ROBERT.—*(Provisional protection only.)*—“A new
“method of making-up cotton, linen, silk, woollen, and other
“textile fabrics, whether waterproofed or not, into wearing
“apparel, horse clothing, tents, tilts, and all other articles or
“things for which such fabrics are used, by which method the
“article or thing when made up and worn is perfectly ven-
“tilated.” The ventilation is effected by punching holes in
the material in the parts in which perspiration is most likely
to accumulate. The holes are protected by stitching them
round, or by inserting metal eyelets, and by covering them
with a lapping seam, fold, or trimming, fastened in one edge
or side only.

[Printed, &c. No Drawings.]

A.D. 1856, April 9.—N^o 855.

GEDGE, JOHN.—(*A communication from M. Sejac.*)—(*Provisional protection only.*)—“Improvements in the treatment or preparation of leather, and in the manufacture of articles composed thereof.” The patentee purifies old leather and renders it pliable by means of a preparation of quick lime and albumen. From the leather thus prepared he makes various articles, amongst them boots and shoes, the manufacture of which he details. He adds that this prepared leather may be used for saddles and harness.

[Printed, 4d. No Drawings.]

A.D. 1856, April 25.—N^o 995.

FRAËTANIEL, ISAËE DANIEL.—“An improved safety rein “ or bridle.” In a sheath or leathern socket formed upon the martingal is a small solid cylinder of caoutchouc, or other substance forming a spring, fastened at the upper end to the socket, and having a ring secured to its lower end. Round each fore-leg of the horse is a garter which carries a ring; one end of the safety rein (of twisted or plaited leather) is fixed to the right ring; the rein is passed thence through the middle ring, the left ring, and a guide ring on the under belly band, up to the driver, or, if preferred, to the inside of the carriage. On the upper part of this rein is a graduated scale “to indicate the action” of the rein, and between each figure of the scale are holes for the reception of a hook to keep the rein at the desired length. There is also a guide or stop to retain the rein in its place and prevent its falling. The spring may be united to the martingal in any other manner, or it may be placed elsewhere; the indicator or stop or both may be omitted; and this invention may be applied to two or more horses.

[Printed, 8d. Drawing.]

A.D. 1856, May 14.—N^o 1136. (* *)

DRIEU, JEROME ANDRÉ.—This invention “relates to the manufacture of very thick goods, such as horse-cloths, blankets, rugs, bockings, pilot cloths, druggets, or any such thick materials, and consists of using an extra floating warp of woollen shoddy, mungo, or other fibrous materials, and of confining

" the said extra floating warp to the centre or interior of such goods, still preserving a woollen face on both sides or surfaces."

[Printed, &c. Drawing.]

A.D. 1856, June 2.—N° 1302.

DIEUDONNÉ, LOUIS AUGUSTE.—(*A communication.*)—(*Provisional protection only.*)—“ Improvements in nose bags,” to avoid the loss of fodder. The strap, by which the ordinary nose bag is suspended, has an additional strap “ attached at its sides “ towards the top, so as to form a loop for encircling the horse’s “ head,” and rings are placed at each side of the double strap or loop. The two ends of a rope are passed through the rings and fastened to the sides near the bottom of the bag. When the bag is put on, and the rope is passed over a hook on the saddle, the motion of the horse lowering its head will draw the bag upwards.

[Printed, &c. No Drawings.]

A.D. 1856, June 18.—N° 1434.

DE BERENGER, RAYMOND LEOPOLD.—“ Improvements in “ nose-bags.” These bags are constructed “ to fall or rise “ proportionately to the increase or diminution of the weight “ of the food” within them, so that a “ uniform feeding sur- “ face may be at all times maintained.” Elastic bands pass down each side and are attached to hooks, or by sewing, or otherwise: side loops confine the action of the bands, and protect them from wear and tear. The bag is suspended by a strap, or a “ spring box or reel may be attached in any convenient part “ of the bag, and from thence suspended, through the medium “ of a cord or otherwise, from the bearing rein or harness.”

[Printed, &c. Drawing.]

A.D. 1856, July 11.—N° 1638.

HARRINGTON, ROBERT.—“ Improvements in umbrellas, para- “ sols, walking sticks, whips, &c.” This invention relates to bending metal tubes (by preference of brazed iron) into hooks or handles “ suitable for fitting on to the ends of the tubes or sticks “ of umbrellas, parasols, walking sticks, and other similar articles, “ and in afterwards japanning, or otherwise coating and cov- “ ering them.” An upper and a lower die are employed; the

lower consists of two parallel cheeks "placed sufficiently apart to " allow of the tube to be bent passing between them;" at one end of the opening between the cheeks is a shelf, "up to the end " of which the length of tube is fed; at the other end is a "friction wheel, which turns to allow the tube to pass freely over "it while bending." The lower part of the upper die "corre- " sponds in form to the inner side of the bend to be produced." When the length of tube has been bent, "its end is cut off at a "suitable angle, and the opening is stopped with a composition "of glue and whiting, prepared by mixing whiting with strong "glue until a plastic mass is produced." Sometimes, instead of japanning directly on to the metal, it is first covered with paper, by which means the hook or handle is rendered more pleasant to the touch, and the japan is less liable to crack.

[Printed, 10*d.* Drawing.]

A.D. 1856, July 16.—N^o 1670.

TURNER, HENRY.—"Improvements in cutting hides for making "flexible pipes, and for certain other purposes." The patentee, after referring to the specification of letters patent granted to him August 8th, 1854, adds, "the hide is cut into a continuous "length in the manner described in the specification above "referred to, or by any other suitable means, and after being "tanned or otherwise prepared, it is converted into a flexible "pipe, or into straps or bands for card fillets, or harness, or "for other purposes," excepting for driving machinery.

[Printed, 4*d.* No Drawings.]

A.D. 1856, July 25.—N^o 1768.

BYFORD, THOMAS.—"Improvements in horses' bits." In this bit two bars or mouth-pieces, jointed at their middle, are attached at a distance from each other to the same cheeks. Rein rings are secured to the cheeks at the end of each bar, so that the upper reins and bar act as a snaffle, and the lower ones as a curb bridle.

[Printed, 6*d.* Drawing.]

A.D. 1856, August 6.—N^o 1856.

EVANS, THOMAS, junior.—"Improvements in harness." The harness (or parts thereof) is constructed of wire rope, having a *core of hemp tarred or otherwise, india-rubber, flax, or cocoanut*.

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Wire. To obviate rigidity the wire rope is made in links or short lengths united by loops, rings, short chains, &c. For protection against the weather it may be covered with a coating of tallow, pitch, or tar, and linseed oil, mixed together, or with india-rubber, black Japan varnish, or Brunswick black; or galvanized wire, or wire electro-plated with silver or gold may be used.

The patentee states in his specification the sort of wire rope which he prefers for harness, traces, collar straps, breeding, buck bands, reins, bridles, and halters, and the methods which he considers best for attachment.

[Printed, &c. No Drawings.]

A.D. 1856, August 16.—N° 1010.

LILLEY, HAMMEL.—"Improvements in the manufacture of 'ships' ironwork, a part of which improvements is applicable to 'the manufacture of other articles in iron.' " This invention consists in the use of chilled moulds in place of the ordinary sand moulds for the casting of ships' ironwork and sundry other articles, amongst which are mentioned rangers and troughs. The moulds are made "accurate in form and smooth" inside; they are provided, where necessary, with metallic cores which pass into and through them; and the parts of which they are made are joined together, when they are being used, "by methods commonly resorted to in other casting processes." The patentee employs for ships' castings either ordinary or malleable cast iron, for other articles ordinary cast iron. He asserts that by the use of chilled moulds the castings "have a greater hardness on their surfaces."

[Printed, &c. No Drawings.]

A.D. 1856, August 20.—N° 2011.

POITIER, HOWARD.—"The application of a new material or 'material for the manufacture of brooms and brushes in general and for other purposes, and for improvements in the manufacture of street scavengers' and other brooms and brushes." For the material of which the patentee makes his brushes, &c. see the abridgment of specification, dated March 4th, 1856. He claims, also, "when the bases or thicker ends of the ribs are used, a manner of applying them, by which the use of wire, pitch, or any fastening or fixture will be rendered unnecessary, if not all unnecessary."

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“unnecessary.” The stock of the brush is made in two parts, the under or true stock being perforated to receive the material, and the upper or back being nailed or screwed on to it. The holes are larger on the upper than on the under side, and “the tapering material being taken in suitable quantities to the size of the hobs may be drawn through until they jamb, when a sharp blow on their thicker ends will wedge them in the holes.”

[Printed, 4d. No Drawings.]

A.D. 1856, September 25.—N° 2246.

SILVY, HENRY JOSEPH MARIE EDOUARD, and PLAGNIOL, AMEDÉE ANNE HENRY.—(*Provisional protection only.*)—“Improvements in harness,” which enable the driver to liberate the carriage at once, if required, from the horses. In double harness a forked metal piece is fastened to the saddle; and to the fore end of the traces is attached a flat metal piece which fits into the fork and is secured by a bolt passing through both. The driver can by means of a connecting strap or cord draw out the bolt and thereby loose the trace; at the front end of the pole is a moveable cap kept fixed thereto by a spring; when the horses advance, they act upon this spring, loose the cap, and set themselves free. For shaft harness there is fixed to the inner side of the shafts a flat metal piece, fitting and secured as above, and drawn out in the same manner; no traces are required. Certain breaks are attached to the carriage springs, so that the driver may from his seat act on the wheels and stop the carriage.

[Printed, 4d. No Drawings.]

A.D. 1856, October 11.—N° 2389.

VARNELL, GEORGE WILLIAM.—“Improvements in mounting troughs, mangers, and apparatus used for feeding horses and other animals.” By this invention the feeding apparatus can be rendered inaccessible to the horse, “thus tending to prevent the habit of crib-biting being acquired.” On each side of the stall is a V-shaped iron frame, connected at top by the manger plate and at bottom by a bar. In the paving are set eyes which receive pins projecting from the frames and in which the frames turn. Pans for corn, hay, and water, having flanges at their upper ends, are screwed to the plate. Boards are fastened to the bar and against the edges of the plate, corresponding to the

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upper part of the wooden partition at the end of the stall. The food is put in from the back of the stall, "a great advantage in feeding vicious horses." The strap by which the horse is tethered passes through a hole in the boarding and thence through a ring on the plate. When the horse has done feeding, the manger is turned back until the boarding is flush with the upper part of the partition, when it is arrested by stops and bolted. A revolving trough may be introduced into a sty by fixing in the wall or side a frame having a rectangular aperture through it, and two pins at the lower part which enter eyes cast on the bottom of the trough.

[Printed, &c. Drawing.]

A.D. 1856, October 21.—N^o 2503.

HOLDEN, HOWARD ASHTON.—"Improvements in furniture for railway and other carriages, and which said improvements are also applicable as a means of finishing or ornamenting the iron parts of harness and other articles made of iron, to which such mode of finish or ornamenting has not heretofore been applied."

The patentee claims the invention of coating with enamel or glass all articles "appertaining to the furniture or fittings of carriages or other vehicles, as well as the metallic parts of general carriage and other harness furniture." He does not claim any novelty in the mode of applying enamel to the various articles mentioned in his specification; they may be cleaned with diluted acids and then coated by the process described in the specification of Thomas and Charles Clark, May 25th, 1839, or in that of Charles Henry Paris, January 23rd, 1849. All angles, edges, or projections must be avoided in shaping the articles, as the coating "is apt to run during the process of firing and leaves these parts bare."

[Printed, &c. Drawing.]

A.D. 1856, November 1.—N^o 2568.

PARBERY, JOHN.—"Certain improvements in horse collars." For the more readily putting on a collar and adjusting it to a horse's shoulders, the patentee so constructs the hames that they constitute the groundwork of the collar; they are united at bottom by a hinge joint, "the construction of the collar being such as to allow of its yielding laterally from this part," and

at the top, where they terminate with vertical ears, by an adjustable screw or other suitable means. The hames may be of solid iron, or tubular, or partly wood and partly iron. There are two draught eyes on each side, so that the length of the straps may be altered to afford relief to horses with tender shoulders.

[Printed, 10d. Drawing.]

A.D. 1856, November 3.—N^o 2578.

MIDDLETON, SAMUEL.—“ Improvements in the manufacture of “ certain articles of leather without seams.” The greater part of this specification refers to machinery for forming “ the uppers of boots “ and shoes ” of one piece of leather “ without seam or join of any “ kind,” and to the method of using the same. It treats also of the manufacture of helmets, cartouche boxes, and articles of similar character, which are made of leather, but in parts; and of scabbards, whip handles, sockets for whips, and various articles, which are formed without seam or join, and from the skins of animals’ tails. For whip handles and whip sockets the tails of sheep, calves, and pigs are preferred. The skins are carefully taken off, cleansed, placed in “ fresh slackened lime water, rather “ weak,” for about 24 hours, then in “ a stronger solution of “ lime water ” until the hair can be easily scraped off, again cleaned, and tanned in the usual manner. They are then placed on taper mandrils of metal or hard wood and rolled between two hard surfaces of wood or metal; the mandrils are thrust in from time to time, “ until the leather thus stretched and curried fits “ tight thereon;” the operation is continued as long as is necessary. Or the operation may be performed in a machine of the following description:—Mandrils, having each a worm wheel upon the larger end are laid in notches cut in the end of a frame which slides in an outer frame. A screw works across the sliding frame in bearings, and the teeth of the mandril wheels “ take into the “ spaces between the threads of the screw.” A spur pinion, fixed upon one end of the screw, gears into a rack on the inside of the outer frame. The leather is curried during the rotatory motion of the mandrils by the following contrivance:—Four plates have curved recesses on their inner sides; the bottom plate is fastened to a cross-piece which is fixed to the outer frame; the top plate slides in guides and is operated upon by a weighted lever; the side plates, connected by weighted bent levers, slide on the cross-piece;

thus the surface of the leather is in continual contact with the edges of the pieces. Or "the currying pressure pieces" may be made to rotate instead of the mandrils. When the leather tubes are removed, they are placed upon thin taper tubes of metal, and are ready to be attached to whips. The bottom of whip sockets is formed "by a mounting of metal, or by inserting and fixing a piece of leather thereinto."

[Printed, 8s. 8d. Drawings.]

A.D. 1856, November 14.—N^o 2698.

GREAVES, JAMES.—(*A communication from Henry Adams.*)—
"An improved construction of ladies' side saddle." This invention gives a lady "a safer, more elegant, and comfortable seat on horseback." The saddle-tree is very similar in shape to that used in making a man's saddle; the near side horn is rivetted thereto; it is set on one side of the tree head, at some distance below it, and secured to the front and side bars, or to either bar only. The leaping horn is fastened to the near side horn, "so as to give the rider a close grip instead of the wide spread she has in the old style of saddle."

[Printed, 6d. Drawing.]

A.D. 1856, December 1.—N^o 2846.

MONNIER, Noël.—"Improvements in bridles and bits for stopping horses," applicable to draught and to saddle or led horses, and "by the aid of which," says the patentee, "I can double, treble, quadruple, and still further increase the effect of a man's strength upon the horse." Near the top of each cheek is a hook, by which an apparatus, consisting of two metal pieces, (each furnished with two or more pulleys and connected by two springs) is united to the headstall. There are two pulleys on the front, and two rings at the hinder extremity of the martingal; one pulley on each side of the nose band; and a hook on the crupper, round which a cord or thong is passed, having its ends attached to the rings. Another cord or thong, passing over the pulleys in the apparatus, over one pulley on the nose band, and under one on the martingal, is fastened to the safety rein; or it may be in one piece so as to form half of the rein. Pulling this rein separates the springs and tends to draw the bit and headstall together. In another arrangement for draught horses, the nose

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band has on the inside two springs pressing against the nostrils, and a pulley and a loop or hook on each side: two braces with pulleys are fixed on each side of the collar; two braces on each side of the saddle; and a pulley on the crupper strap: cords with one end hooked to the loops on the nose band are passed round the parts described, and are buckled at the other end to the safety rein.

[Printed, &c. Drawing.]

A.D. 1856, December 4.—N° 2875.

BAYER, LOUIS.—(*Provisional protection only.*)—“ An improved “ stuffing to be used in place of hair or other substances in which “ such articles are commonly employed.” The material substituted is “ the fibre of the colonial plaintain tree or musa para- “ disiaca:” the fibre is taken from the tree by any of the usual methods, and is submitted to the ordinary processes of dyeing, curling, carding, or otherwise.

[Printed, &c. No Drawings.]

1857.

A.D. 1857, February 6.—N° 339.

GREEN, WILLIAM.—“ Improvements in manufacturing or pro-“ ducing substitutes for leather for boots, shoes, and other uses, “ and in machinery or apparatus for effecting the same.” When sheets or continuous lengths of artificial leather are to be produced, the materials, which form the body thereof, are passed through a machine (detailed in the specification) composed of straining bars, rollers, troughs containing the composition and coloring matters, scrapers, circular brushes, a drying table, and the usual appendages for motion and guiding. The compositions preferred are solutions of caoutchouc or gutta percha, separate or combined, and united with a suitable coloring matter: if the coloring matter is not strong enough, “ a dry powdered colour is applied “ over the same, after it is spread upon the fabric or material, and “ whilst in a moist and adhesive state. In some cases the desired “ colour is produced by dyeing or staining.” The patentee *describes a machine for coating the fabric with varnish or other*

slow-drying matter. When the fabric is to be employed for boots, shoes, "or other hollow, ornamental, or irregular-shaped articles," it is first formed into the desired shape, and the coating or coatings are applied afterwards. He refers for "the coating or finishing" "materials" to the patent granted to him, July 21st, 1856, but does not confine himself thereto. He sometimes uses "thin sheets" "of iron or other metal, or cardboard, millboard, or other rigid" "materials as the groundwork of the substitutes for leather." He renders articles permeable to air by perforating them and lining them with a fabric having nubs or protuberances on its surface. He describes his mode of making boots and shoes, of imitating binding and stitching (but lays no claim thereto, his invention being the imitation of leather), and of manufacturing travelling, dressing, and cigar cases, powder flasks, bottles, architectural and other ornaments, tubing, gloves, harness, whips, military accoutrements, buckets, &c. He gives a short description of a machine, by means of which "certain kinds of hollow, irregular-shaped, and ornamental" "articles may be pressed or embossed on two or more sides" "simultaneously;" and, when "a filamentous or fibrous material" "is to be attached to fabrics," he sometimes connects "a carding" "engine, or similar appliances to those employed in carding" "engines, to an embossing machine."

[Printed 2s. Drawings.]

A.D. 1857, February 6.—N° 344.

NEWTON, THOMAS.—(*Partly a communication.*)—(*Provisional protection only.*)—“Improvements in the construction of stockmen’s saddles and appendages thereto.” By this invention the saddles of stockmen and foraging parties are rendered more convenient for transport and better adapted to their wants. The pannels are removable and attached to the saddle-tree by iron-pointed pegs and sockets with an elastic spring in the pannel at the gullet. The flaps also are removable and fixed in their place by wedges, and with or without steel springs. The appendages are “the nosebag, saddlebags, holsters, hobbles, saddlecloth and girth, and stirrups and leathers.” The bags are lined with a coating of india-rubber or vulcanized canvas; they are connected to the saddle by spring hooks and D loops: the saddlebags are made “telescopic, to fit in each other.” The holsters have vulcanized india-rubber tops and bottoms. The hobbles are made of circular webbing with

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eyelet holes and screw fasteners, and are appended to the saddle with catches. To strengthen the saddlecloth and prevent the saddle from moving forward on it, fish skin or woven wire, enclosed in felt, is inserted in the body of it. The girths are made of circular webbing and lined inside with india-rubber or india-rubber cloth, thereby adapting them to carry water when required, or they may be inflated and rendered buoyant in water. The stirrups and leathers are united by an iron frame, which is covered with leather or canvas and welded to the stirrup-iron, thus covering the calf of the leg, acting as a splash-dash, and protecting the horse's flank.

[Printed, 4d. No Drawings.]

A.D. 1857, February 10.—N° 384.

HODGES, WILLIAM RICHELIEU.—(*Provisional protection only.*)—“ Improvements in the manufacture of an elastic material, and of its application to certain purposes.” The surfaces of two elastic materials are united with a solution of caoutchouc, or a composition of caoutchouc and other similar waterproof substance, whereby is produced an elastic material perfectly waterproof, and resembling cloth or woven fabrics. This material is applicable to most kinds of wearing apparel, belts, saddlery, lining for carriages, &c.

[Printed, 4d. No Drawings.]

A.D. 1857, February 11.—N° 397.

PITMAN, JOHN TALBOT.—(*A communication.*)—“ Improvements in the mode of making metallic hames for horses.” The hames are made in a machine consisting of metallic rollers, arranged in pairs, one above the other, “ and operated by means of cogged gearing.” The rollers are circumscribed by a series of steel or other hard metal rings, in which the dies are cut. Immediately in front of the die rollers are two feed rollers, one above the other, having angular grooves, and stops at one end “ for the purpose of guiding the iron bar into the forming dies or rollers.” Guides are placed between the die rollers to conduct the bar from one pair to another. At the ends of each set of dies is a countersink or punch, for forming the end loops of the hame during the passage of the bar. The draught eyes “ are formed upon the rollers similar to the hame and attached to it by a

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"single blow from a vertical or drop hammer." The ferrites are fastened on in a like manner. The patentee describes the passage of the bar through the machine; it passes twice before it is completed.

[Printed, &c. Drawing.]

A.D. 1857, February 23.—N° 597.

HICKMAN, JAMES HOWARD.—"Improvements in saddles and collars for horses and other animals." Saddletrees and draught saddles or pads are formed wholly or partially of hardened rubber, or of hardened combined with vulcanised rubber or cured spongy rubber, or of a combination of wood or metal therewith. The padding underneath the saddletree is of rubber or rubber webbing, either alone or with cotton, woollen, or other fabrics; one or more layers are secured to the inside of the crutch, also to the inside of the side and back frames; the rubber is in a cellular, tubular, or latticed form. "Some soft evaporating" material should be applied between the animal and the rubber, either attached or separate. Collars are made of vulcanised rubber, in one or more pieces, hollow or solid; rubber also is used for the stuffing. For the covering, hardened rubber combined with vulcanised, or either in combination with any soft substance, or any soft material prepared with a coating of vulcanised rubber, is employed.

[Printed, &c. Drawing.]

A.D. 1857, March 2.—N° 602.

JONES, FARNWICK DUNANTH.—(A communication.)—(Provisional protection only.)—"An improvement in the construction of bits of horses." The mouth-piece is hollow and pierced with small holes; the ends are closed with screws. This construction allows of being introduced at the ends "a substance of any sort, such as honey, sugar, &c., which in melting goes into the horse's mouth, refreshes him, prevents immediate hunger and coughing, and permits of the horse making a longer journey without eating."

[Printed, &c. No Drawings.]

A.D. 1857, April 2.—N° 615.

HOLDEN, HOWARD ARNOT.—(Provisional protection only.)—"Certain improvements in carriage lamps, and general carriage &c." S.A.D.

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“ harness furniture and fittings.” The object of this invention is to lessen the cost of certain portions of the materials whereof the articles are made. The patentee uses sheet zinc for the handles and internal fittings of his lamps; the reflectors round the tops, where the heat is usually great, are made of block tin. He employs zinc, “with such suitable alloys as shall impart to it necessary malleability or ductility for the purpose of working,” for parts of the metallic fittings of carriages and harness. Both the zinc and the tin, after being formed into shape, can be electro-plated and burnished when required.

[Printed, 4d. No Drawings.]

A.D. 1857, April 14.—N° 1049. (* *)

WICKS, PETER, and GHISLIN, THOMAS GOULSTON.—This invention consists in “the adaptation, application, preparation, and uses of the fibres, vegetable substances, their roots, barks, stems, fronds, stipes, cuticles, leaves, flowers, and fruit, their medicinal, farinaceous, saccharinous, gelatinous, alcoholic, fatty and all other properties of the following South African plants, their species and families, viz. :—junceæ, serratus, trista, &c., aloe arborea, &c., sansevieria, malvaceæ, Watsonia latifolia, narvoso humilis, papyraceæ, &c., restiaceæ, gladiolus, antholyza, lapeyrousia, &c., tulipa beyniana, babiana hortenses, &c., Witsenia cyperaceæ, cycadæ amaryllideæ, belladonna, &c., gnaphalium papyrosum, tritomanthe, triticum, strelitzia, salicaria, euphorbiaceæ, vergelia, tritonia holeus, maze, graminæ, saccharinæ, &c., stipea, oxalis, ficoidæ ficus, sparaxis asphodelæ, proteaceæ, phoenix reclinatai, &c., hibiscus, bryonia, &c. &c., for the purposes of manufacturing pulp, paper, yarns, jute, coir, thread, cordage, roping, making tilts, horse cloths, sacking, bagging, plaiting, felts, cloths, crinolines, cottons and silks, textile fabrics, spinning and weaving purposes in general; making artificial and substitutes for bristles, horsehair, and whalebone; also for the purpose of stuffing chairs, sofas, &c.”

[Printed, 4d. No Drawings.]

A.D. 1857, May 5.—N° 1265.

PITMAN, JOHN TALBOT.—(A communication.)—“ An improvement in the construction of currycombs.” The material used is india-rubber or other similar substance. The teeth are either

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formed with projecting metallic points, or strengthened by wires not projecting, or made without wires. The whole of the carry-comb, namely handle, hand-supporter, back, and teeth, is made at once, " by running in a melted state and pressing the material " into a mould in which the hooks, when used, have been previously arranged." The india-rubber is then treated and vulcanized in the usual way. " The carrycomb without the hooks " makes an excellent flesh brush."

[Printed, &c. Drawing.]

A.D. 1857, May 5.—N° 1268.

COTTAM, LOUIS LE CHEVALIER.—" Improvements in stable " fittings." The first consists in mounting mangers and troughs on upright axes which turn in sockets fixed to the wooden partitions : when the mangers and troughs are not in use, they are turned a quarter round and enter apertures in the partitions, a side coming flush therewith : the hayrack in the middle is turned half round, its back closing the opening. The second, in arranging mangers to draw in and out as an ordinary drawer ; they are prevented from being drawn out too far by stops and are supported on iron bearers provided with friction rollers. The third, in fitting troughs with covering plates which can be drawn over them, and which " at other times fall down out of the way behind the " manger." The fourth, in giving a hard and polished coating to the interior of troughs : the composition to be laid on is made by dissolving in spirits of wine as much resin as it will take up ; a small proportion of seed lac may be added thereto. The vessel is first to be cleansed with dilute sulphuric acid ; after the composition has been applied, it is placed in an oven heated to about 350° Fahrenheit, and is kept there " until the composition fluxes " all over it ;" it is then withdrawn and cooled slowly.

[Printed, &c. Drawing.]

A.D. 1857, May 12.—N° 1333.

CARBONINO, ROSS CELESTINE.—(Provisional protection only.)—" Improvements in nosebags." The bottom of the bag is made of osier or any suitable solid material ; it is caused to rise, as the fodder decreases, by means of a counter weight at one end of strings which pass through rings affixed to the outside of

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the bag near the opening, the other end of the strings being attached to the bottom.

[Printed, 4d. No Drawings.]

A.D. 1857, May 27.—N^o 1497.

CODET-NÉGRIER, JEAN LÉONARD.—“Improvements in the manufacture of boots, shoes, harness, and other articles.” Only a small part of this long specification relates to harness. The patentee compounds a cement of india-rubber chopped up, gutta percha cut up and purified, and gum lac, “dissolved in their solvents” (which are mentioned,) and mixed together, with 5 per cent. of sulphur. This he applies to traces, pole straps, back leathers, and other articles, also to “leather employed in large steam or hydraulic works,” whenever it is necessary to join or line them, so that all sewing is avoided. He unites the seams of “men’s wearing apparel” with the cement. He describes machines which he has invented for cutting out and pressing together the parts of boots and shoes, and his mode of operating. He describes also an artificial and waterproof leather which he makes from the “refuse parts of leather” by the aid of his cement.

[Printed, 8d. Drawing.]

A.D. 1857, June 18.—N^o 1709.

DAY, HORACE HOLLISTER.—(*Letters patent void for want of final specification.*)—“Improvements in the manufacture of elastic fabrics” of a width sufficient “for gussets, side pieces for boots and shoes, horse and saddle girths, bands, braces, belts,” &c. Two woven or knitted fabrics are united by means of a solution of india-rubber or a sheet of rubber, and passed between pressing rollers or plates. The surface of one roller or plate is grooved diagonally, so that the compound fabric may present the appearance of a number of diagonal raised cords or stripes: the rollers or plates may be grooved diagonally in opposite or other directions. Or only one fabric may be used, and a sheet or film of elastic composition be caused to adhere to the back thereof. The face of the composition is then covered with flock, and the whole is passed between the rollers. Again, non-elastic fabrics may be united by means of strips of india-rubber placed between them, and by subjecting them to the same process. The compound fabric “must be vulcanized in the well-known way.”

[Printed, 4d. No Drawings.]

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A.D. 1857, July 8.—N° 1892.

JONES, WILLIAM EDMONDSON.—“An improvement in trees “of riding saddles.” The pommel and cantle are each made of two pieces of spring steel united at top by a rivet, round which they are free to turn. Two bars, having a right-hand screw and nut at one end and a left-hand one at the other, are attached, one to the pommel, the other to the cantle. The lower extremities of the steel pieces terminate in round bolts, which pass through staples on the side pieces of the tree. By this arrangement the tree can be expanded or contracted, and the side pieces will always lie flat on the horse.

[Printed, *ed.* Drawing.]

A.D. 1857, July 28.—N° 2062.

CLAY, JOHN.—“An improvement or improvements in saddles.” Coiled springs are sewn at each end by means of wire stitches to pieces of webbing, which are nailed to the front and back of the saddle-tree, thus giving elasticity to the seat: the springs may be placed near the pommel or the cantle. Each spring may be enclosed in a tube having a hook at one end. A rod, with a shoulder at one end and a hook at the other, passes through the spring. One hook is connected to the tree, the other to the web.

[Printed, *ed.* Drawings.]

A.D. 1857, August 4.—N° 2106.

DURIEZ, Léon, jun.—(*Provisional protection only.*)—“An improved apparatus for stopping horses” by locking the foot. Attached to each side of the saddle is a frame, in the interior of which are two catches or jaws working on pivots and kept in their position by spiral or other springs; these jaws, when in use, open to allow a conical-shaped stop to pass through. One or more of these stops are fixed to a cord, at one end of which is a collar attached to the horse’s foot; the other end is fastened to a shoulder band, in which is passed the other leg of the horse: the cord from the shoulder band also has stops on it. “Instead of the shoulder band, a martingal may be employed, which being attached to the saddle at the side, opposite to the foot having the lock on, is passed under the belly of the horse, and receives at its extremity the lock, collar, and cords.” When a martingal is used, one apparatus is sufficient.

[Printed, *ed.* No Drawings.]

A.D. 1857, August 6.—N° 2123.

CROSSLEY, DANIEL JONES.—“Improvements in the treatment of certain textile fabrics, called ‘pellones,’ and used for saddle covers, and in the machinery or apparatus for effecting the same.” This invention aims at giving to pellones the “fleecy appearance of hair upon a natural skin.” When the piece is woven and the loops are cut, the ends are temporarily joined so as to form an endless cloth. It is then placed round two rollers, the upper turning on a shaft which is adjusted by screws and bevel wheels, the lower being weighted to keep the piece at a proper tension. On the lower roller is a hand wheel whereby the piece is made to rotate, as the ends of the loops become pointed by means of a carding or combing roller, which revolves at high speed. Bars extend across the piece, fastened thereto by clips, to prevent the loops from getting entangled.

[Printed, 6d. Drawing.]

A.D. 1857, August 28.—N° 2274.

BRADY, JOHN DRUMGOOLE.—“Improvements in saddles.” The saddlebow is made in one or three parts and held to the side bars by passing through metal straps thereon. The back piece or cantle is screwed to angle plates on the bars. On each side of the bow, bars, and back piece, and on each angle plate, are corresponding holes for screws, so that the saddle may be made larger or smaller. By forming the bow in three parts, it may be raised or lowered as well as the bars. The angle plates may be omitted and the back piece be screwed to the under side of the bars. The bars are constructed of “open work, lined or not, as may be required, in order that should a sore occur under the frames, portions of the bars thereof, with the parts of the linings or pannels attached thereto, may be shifted or removed.” These improvements are applicable to all saddles, especially military saddles.

[Printed, 6d. Drawing.]

A.D. 1857, September 29.—N° 2497.

LEJEUNE, EMILE ALBERT.—(Partly a communication from Joseph Jules Brunessau.)—(Provisional protection only.)—“An animal proved crupper.” Caoutchouc in sheets of the form of the crupper required is placed in a suitable mould with the sulphur for vul-

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canising. The mould is immersed in a bath of molten sulphur or in a vapour bath. "By this means a hollow crupper of the required form, containing air, is obtained."

[Printed, 4d. No Drawings.]

A.D. 1857, October 9.—N° 2593.

NEWTON, WILLIAM EDWARD.—(*A communication from James Neil.*)—"Improvements in stirrups or stirrup irons." This safety stirrup is made with a moveable strap bar, which is secured at one end by a rivet or screw on which it turns freely, and at the other by a pin fastened to a lever frame. A helical or other suitable spring keeps both frame and pin in their proper position. The stirrup is provided with projections through which the fulcrum pin passes. For military and some other purposes, side pieces are added to shield the lever frame. When the frame is pressed back by the foot of the falling rider, the retaining pin is withdrawn from the strap bar, and the stirrup is consequently released from the strap.

[Printed, 6d. Drawing.]

A.D. 1857, October 23.—N° 2700.

RAND, THOMAS, and BECKLEY, GEORGE.—(*Provisional protection only.*)—"An improvement in saddletrees." This invention refers principally to trees for military saddles, and consists in constructing them of leather, wood, and metal combined. The side pieces are made of thick sole leather, strengthened on the upper side by a flat strip of steel reaching from end to end. The bow is of iron or steel secured to the side pieces; the cantle is of wood and secured in like manner. The flaps and pannels are mounted on the tree in the usual method.

[Printed, 4d. No Drawings.]

A.D. 1857, October 31.—N° 2777.

COTTAM, GEORGE HALLEN, and COTTAM, HENRY RICHARD.—"Improvements in stable fittings." The patentees construct their gutters, gutter covers, gutter pots and covers, partition posts, ramps, sills, brackets for saddles, girths, and other parts of harness, mangers and top plates, in fine all parts of stable fittings except the partitions between the stalls, of wrought iron, or of malleable cast iron, or of ordinary cast iron annealed. The

brackets are made with perforations through the bearing parts to admit air to whatever is hung on them: in the girth brackets each hook projects beyond the one below it, so that the girths may hang at a distance from each other. The rings attached to the headstalls are so arranged that they drop flush into metal beds. The mangers, and sometimes the top plates, are enamelled and glazed. Details of the mode of manufacturing each fitting are given in the specification.

[Printed, 1s. 4d. Drawings.]

A.D. 1857, December 9.—N^o 3045.

WESTENDARP, CHARLES, junior.—“Preparing a material as a “substitute for ivory, which I propose calling ‘artificial ivory.’” Small particles of ivory, bone, wood, glass, porcelain, cotton, wool, or other articles of like character, “either in a coarse or fine “powder, or in shavings,” or any of them, or any one of them, are combined with glutinous or resinous substances by pressure or heat, or both, or with spirit, oils, “or any similar vehicle or “solvent.” By this combination “a substance of an ivory or “wood-like appearance” is produced, which may be colored, dyed, or stained “during the process of manufacture or after-“wards.” The paste thus obtained “may be immediately “moulded, and become solidified in a short space of time by “means of heat or pressure, or both, or it may be so manufac-“tured as to remain in a pasty condition for a considerable time,” to allow of its being carried to a distance and there worked into any form. The patentee describes his “method of making white “billiard balls,” giving the proportions of the ingredients which he prefers to employ. Among the articles made of this artificial ivory are “whip, stick, and other mounts.”

[Printed, 4d. No Drawings.]

A.D. 1857, December 23.—N^o 3146. (* *)

CROSSLEY, DANIEL JONES.—“Improvements in the manu-“facture of certain textile fabrics called ‘pellones,’ and used for “saddle covers, and in the machinery or apparatus employed “therein, which improvements are also applicable for weaving “other fabrics.” The improvements consist “in weaving the “pellones or saddle covers of an unequal or varying width in the “direction of the length from end to end, that is to say, that the

" two outer ends are woven the broadest, and the warp threads
" are gradually contracted or narrowed towards the middle of the
" 'pellone,' which is the narrowest part of the fabric. This may
" be effected by the employment of a peculiarly formed 'reed' in
" the loom, which is made of a width at the top to correspond
" with the width of the widest part of the pellone, and gradually
" narrowed to the bottom to correspond with the width of the
" narrowest part or middle of the fabric. This reed is caused to
" ride and fall once during the weaving of a single 'pellone,' so
" that the warp threads passing between the 'dents' of such reed
" will be gradually contracted and expanded in width as required.
" It will be evident that this improved manufacture may also be
" applied to the weaving of other fabrics requiring to be woven of
" different or unequal widths throughout the lengths."

[Printed, 6d. Drawing.]

1858.

A.D. 1858, January 26.—N^o 140.

NEWTON, WILLIAM EDWARD.—(A communication.)—"A new
" or improved fabric, intended principally as a substitute for
" leather." The fabric, of cotton or other fibrous substance,
either woven into cloth or in an unwoven state, is saturated and
coated with a compound of linseed oil and burnt umber. The
proportions are about three pounds of umber in a powdered state
to one gallon of oil. As the oil boils, "the burnt umber is added,
" stirring it while the latter is introduced, and also stirring it
" constantly or frequently during the subsequent boiling, so as to
" cause a perfect mixture of the umber and oil, and prevent the
" burning of the oil." The boiling must be continued until "the
" composition when cool will roll in the hands without sticking." The
fabric is laid upon a hollow iron table or slab heated by steam,
bespread on both sides with the composition, and submitted to
the pressure of a heavy metal roller, or passed between a pair of
metal pressure rollers. "The mode of producing the fabric differs
" to some extent, according to the form in which it is to be pro-
" duced or the purpose for which it is intended to be used, but
" the elements thereof are in all cases the same." A description

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is given of the method of making the fabric in a suitable form for the soles of boots and shoes, coverings of trunks, bags, caps, cap fronts, carriage and harness leather, hose pipe, and machine belting.

[Printed, 4d. No Drawings.]

A.D. 1858, February 1.—N° 178.

HALL, WILLIAM KEMBLE.—(*Provisional protection only.*)—“ Improvements in the manufacture of artificial leather.” The patentee impregnates a suitably woven or felted fabric with a solution of the representatives of the “ constituents of leather;” namely, glue, grease, and terra japonica. It is “ subsequently passed through a solution of alum or other similar reagent, by which the entire material and its respective parts are rendered insoluble in water.” The fabric known as undressed moleskin is peculiarly applicable for this purpose. The surface of this artificial leather may be dressed with dubbing, or it may be enamelled in black or colours.

[Printed, 4d. No Drawings.]

A.D. 1858, March 8.—N° 468.

JOHNSON, JOHN HENRY.—(*A communication from Auguste Pellet.*)—“ Improvements in the decoration or ornamentation of leather cloth and similar fabrics, and the application of the same to various useful purposes.” The leather cloth to be ornamented has the desired devices painted or laid upon its face either by hand, or by block printing, or by passing it between engraved cylinders, or in any other convenient manner, such devices being printed in colours, or in metallic foil, such as gold or silver leaf, and “ always by the aid of an oil vehicle or mordant.” After this process the surface is varnished and the fabric is passed through a pair of pressing or calendering rollers. Leather cloth so ornamented will be found well adapted for a variety of purposes, amongst them for saddle making.

[Printed, 4d. No Drawings.]

A.D. 1858, March 26.—N° 639.

BÉRARD, PIERRE HIPPOLYTE GUSTAVE.—“ Applying con-“ centrated collodion to the effect of superseding caoutchouc in“ waterproofing stuffs of all descriptions for manufacturing

"garments and wearing articles, and also for applying it over painted surfaces instead of varnish." For making 1,000 parts in weight of the waterproofing concentrated collodion the usual proportions are, ether, 425; azotic cotton, 175; castor oil, 375; and vegetable, animal, or mineral coloring material, 25. The proportion of castor oil (or other oily substances) is modified according to the degree of suppleness required. The application of this composition "is effected by the usual process and apparatus for manufacturing cerecloth." It can then be used for boots and shoes, saddlery, coach making, &c. Papers are rendered impervious by being coated with this collodion in nearly the same way as that employed for stuffs. To produce a cheap paper for roofing purposes from 40 to 50 per cent. of tar is mixed with the composition. The proportions of 1,000 parts in weight of concentrated collodion varnish are, alcohol, 100; ether, 630; azotic cotton, 250; castor oil, 20, the proportions being modified "according as the varnish is required to be unctuous or dry." It may be used as a substitute for oil paint and is applied in the same way; it may be added to house paints; it receives a fine polish by being rubbed over softly with a pad of cotton or tow covered with a soft cloth dipped in ether. The patentee refers to a description of the collodion, for which letters patent were granted to him, July 7th, 1857.

[Printed, 4d. No Drawings.]

A.D. 1858, April 10.—N^o 777.

PARMELEE, SPENCER THOMAS.—"The manufacture of improved belting for machinery or other purposes," amongst which are tracings and girthings. The belting is composed of layers of woven materials cut into strips of the required dimensions. The strips, having been coated on both sides with india-rubber, gutta percha, or a combination of both, are laid one on the other by hand, or "by means of a two-cylinder machine so constructed with guides as to bring the different plies parallel one to the other, and press the same into close union." The belting thus formed is submitted simultaneously to heat and pressure. One of the cylinders is enclosed in a heated chamber; both are provided with one or more grooves corresponding to the required width of the belting; they are connected by an endless band, and the belting passes between it and the enclosed cylinder. Or a metallic press may be employed, "the bed of which is grooved internally

" in width, corresponding with the belting, or furnished with " shifting plates grooved in like manner, in which a portion of " the belting is laid, and covered with a metallic surface plate, so " as to surround that part of the belt within the press; pressure " by means of screws and heat is then applied till the belting is " sufficiently cured." Or the belting, with intervening bands of metal as wide as the belting, may be wound round a cylinder and secured thereto, and the requisite pressure may be supplied by the aid of a clasp or band and moveable side plates: the belting is then to be subjected to heat by placing the apparatus in a heated chamber. Full details of each machine are given in the Specification.

[Printed, 1s. 4d. Drawings.]

A.D. 1858, May 6.—N° 1014.

CLARK, WILLIAM.—(*A communication.*)—" Improvements in " 'bits' for horses' bridles." This invention is applicable to all sorts of bits. Two toothed segments turn on fixed axes, one on each cheek piece; they have a ring at either end; to one an extra rein is fastened, to the other the chain of a nose band. Two pinions, gearing with the segments, cause the bit to turn in the horse's mouth—this result, however, is not very essential. The chains connect the nose band to the bit. The nose band is formed of a piece of curved metal, jointed at top, and furnished with small teeth and two metal pallets of a convex form, which serve as nostril stoppers.

[Printed, 8d. Drawings.]

A.D. 1858, May 28.—N° 1206.

ARNAL, AUGUSTE.—(*Provisional protection only.*)—" A nose- " bag for horses," in which corn is supplied to the horse in small quantities at a time. The corn is placed in bags on each side of the horse's head, and the bottom of each is fastened to a piece of board, to which the bottom of another bag is attached, open at the top to admit the horse's mouth. In the bottom of each corn bag is a small opening through which the corn passes into the middle bag, until the corn covers the opening; and in a board, which forms the bottom of the middle bag, is a hole covered with fine grating to allow dust, &c. to pass through. The nose-bag is fastened to the horse's head by straps, and the tops of the corn

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bags are tied with strings to prevent the corn from being shaken out.

[Printed, 4d. No Drawings.]

A.D. 1858, June 10.—N° 1317.

LUIS, Jozé.—(*A communication.*)—(*Provisional protection only.*)—“An improved nose-bag” enabling the horse to breathe freely while eating. The bag is made of coarse thread canvas, the threads of which are close enough to prevent the oats from falling out, but sufficiently apart to permit the horse to breathe freely.

[Printed, 4d. No Drawings.]

A.D. 1858, July 2.—N° 1492.

LE SOUÈF, DUDLEY.—(*A communication from Charles Girardet.*)—“An improved shaft bearer or tug, and an improved manner of affixing the same to the harness.” The tug is a ring or band of metal, the upper half of which moves on a hinge or hinges and is locked by means of a spring, catch, or pin, when the shaft is placed in the ring. The lower or bearing part of the ring projects from, and may be cast in one piece with, a plate having two loops through which the saddle strap passes freely. The saddle strap has holes punched through it; and, when it is required to raise or lower the tug, a hole in the strap is brought opposite to a hole in the plate, and a pin, attached to a flap which is hinged to the under side of the plate, is thrust through both holes and secured by a spring or catch. “A pin, fixed in the saddle, and passing through the last hole in the saddle strap, secures the tug in its position, the strap being prevented from disengaging itself by revolving washer, which takes into a groove in the pin.”

[Printed, 6d. Drawing.]

A.D. 1858, July 12.—N° 1558.

NORTHEN, WILLIAM.—“The application of stoneware or earthenware, colored or plain, to improved and original decorative signs.” This invention consists, first, in an improved description of pipes for drains; they are made in two or more pieces and united by grooves, sockets, flanges or tongues, so that one part can be readily removed for the purpose of examining and cleansing: angular pieces or seats may be added, if necessary. Secondly, in constructing sewers either with semicircular arches and “segments

“ on right angles for the base,” or arches only, or segments only, connected as above. Thirdly, in forming cylindrical or square vessels with ground in stoneware stoppers, having a hole through the top, or with screwed wooden shouldered bungs having a hole in the middle, to admit a tap: when a stopper is used, a neck with holes on each side projects to fasten it down by. Fourthly, in constructing jars or vessels in such a manner that the lid is fastened by a turn and seals the contents hermetically: there is a groove round the neck, and either two projections on the neck or niches in it, according as the lid has corresponding niches or projections: inside the lid is a projecting ring. Or there is a round hollow projecting flange from the inside of the lid top, which, when put on and a slip of paper or skin pasted over the joint, hermetically seals the contents: an elastic ring round the inside of the flange adds to the security. Fifthly, in forming a projection inside mangers and troughs, thereby preventing waste of provender. Sixthly, in the application of colours to the exterior of jars and bottles: the metallic oxide of the required colour with the ordinary fluxes is used: the articles are afterwards dipped into a white stoneware glaze.

[Printed, 8d. Drawing.]

A.D. 1858, July 19.—N^o 1629.

LAMBERT, CHARLES.—“ Improvements in collars for horses “ and other draught animals.” The collar is of metal, wood, or other hard substance; it is made in two parts united at top by a hinged joint, and secured at bottom by a thumb screw which passes through two projections, or by other equivalent means. It forms at once collar and hames by shaping the inside of the parts to fit the animal’s shoulders: little or no padding is required. Eyes or sockets are cast with the collar, or fixed thereon, at right angles or nearly so: tug hooks are attached to the eyes; and there are holes in the upper part of the collar to pass the reins through. In a modification, the collar for lightness’ sake is made of tabular steel; it does not open at bottom, but at top by means of a hinge.

[Printed, 8d. Drawing.]

A.D. 1858, July 29.—N^o 1711.

MUSGRAVE, JAMES.—“ Improvements in stalls and enclosures “ for horses, cows, and pigs.” In the stall divisions of stables

the patentee employs iron for the heel posts, ramps, and sills. Between each ramp and sill are two or more metallic tubes resting in the heel posts and wall. Opposite each tube is a hole in the post, having a raised moulding on its outside margin: through the post and tube slides a rod with a knob at its end, which fits into the moulding, and which, when drawn out across the passage, is secured to an iron plate in the wall, thereby preventing one horse from gaining access to another. Cast-iron shoes slide over the ends of the manger plate and are screwed to the stall divisions. The water trough turns on pivots; it has at the back a slot or grating for emptying the water; it stands in a larger trough provided with a pipe at bottom. The manger is shaped to keep the food always in the middle; it is larger in dimension than the hole in the top plate, to prevent the horse from throwing out the food: the portion which projects over the manger has round edges, and perforations for admission of air. In the rack a horizontal grid rests on the top of the hay to prevent waste; it moves up and down on guide rods, and is hooked to the wall while the rack is being filled. For cut hay there is a moveable bottom which slides on the same rods and rests on projections below; it is hooked flat against the wall, when cut hay is not used. The halter by which the horse is fastened descends through a slot in the top plate, round a roller in the lower part of a bracket screwed to the under side of the top plate, and through a flat plate to the ring of a split link: the link passes through an india-rubber buffer and a weight which is held fast by a piece of iron entering the split and turning out into a T. About twelve inches from the top of the halter is a small fixed ball which rests on the edges of the slot and keeps off the strain of the weight from the horse's neck. The lantern is suspended as follows:—a metallic tube with a slot in the under side extends across the whole of the stalls; it is supported by brackets, each having a corresponding slot: a thin plate with rollers on the upper part traverses freely the length of the tube, and carries a lantern connected to it by an elastic strap. In loose boxes there is no tying apparatus or hay rack: the manger turns on pivots: the top plate is divided into two unequal parts by upright divisions of metal: the smaller space is fitted in front with vertical iron rods which form the rack: in front of the larger space is a hanging door of wood or iron railing turning on pivots, so that it can be pushed back when the horse is to be fed: the stall door is of cast iron, the top panel being perforated for ventilation.

stalls for cows the stall divisions, racks, and troughs are of iron : the divisions are cast in one piece with sole plates ; a strengthening moulding is cast upon the outer edge, gradually increasing in size till it reaches the sole plates. A flange projects from each side of the divisions to receive the ends of the feeding troughs ; and on the top are projections for the ends of the fodder racks. There is a hole in one division to permit water to run from trough to trough ; a recess with a moulding round the edges and having two vertical rails in sockets for the cow chains ; an iron rod to prevent the cow's head from passing too far forward ; and a division in each trough to separate the cows when feeding. A "groupe" for receiving the droppings consists of a semicircular gutter with raised dice cast at the sides, and a cast-iron grating to cover the gutter, either hinged or sliding along a rebate. In the roof is a ventilator, moving on pivots a little above the middle, so as to allow the sash to close by its own weight, and so made and arranged that it is water tight when shut. In pig sties the roof, sides, and partitions, are of iron fixed to iron pillars : the troughs are inserted in the front line of the open enclosures between two of the pillars and rest on pivots : the swinging plate above the trough is secured in the usual manner : one plate in each enclosure is hinged for removing the manure. To construct straw yards metal pillars with sole plates are used, similar to those employed for pig sties : each pillar has a hole cast through it below the surface of the ground : a piece of iron tubing or wood passes through the holes and connects the pillars together. The hanging stile of the gate is of stout iron tube, and the rails are attached thereto by iron bosses : or a semicircular boss is cast on the stile to receive radiating iron tubes whose ends are rivetted to the top or bottom rail. Full details of the various parts of the stalls for horses and cows, of the sties, and of the gates, together with modifications of some of them, are given in the specification.

[Printed, 1s. 8d. Drawings.]

A.D. 1858, August 12.—N° 1834.

HOUGHTON, GEORGE.—"An improvement or improvements "in saddles." Springs are rivetted at one end to the webbing which constitutes the foundation of the saddle seat, and at the other to the front of the saddletree : the springs may however be *rivetted to the hinder part* ; or at each end to the webbing which

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is nailed to the tree ; or they may be attached to each end of the webbing and riveted to the tree. The springs are made by bending plates or strips of steel, or other metal or alloy having the required elasticity, into an undulating figure, or by joining the ends of two bow-shaped steel plates. The saddle is finished in the ordinary manner.

[Printed, &c. Drawing.]

A.D. 1858, September 9.—N° 2045.

TIMMS, THOMAS.—"Improvements in bits." The cheeks are jointed to the extremities of the mouth piece, "to allow them to " adjust themselves according to the position of the head of the " horse." On each cheek, below the mouth piece, is a ring or sliding piece to which one end of the rein or bridle is fastened. A spring, by preference of vulcanized rubber, is attached at one end to each ring, whence it passes within the upper part of the cheek, which is made tubular for the purpose, and is secured thereto at the upper end. As the tension of the rein increases, the rings slide down, and a greater leverage is obtained.

[Printed, &c. Drawing.]

A.D. 1858, October 25.—N° 2380.

CRADDOCK, WILLIAM, and WHITE, JOHN.—"Improvements " in the connecting links of harness hames." This link is formed at each end with a hook, or with an eye, according to the make of the hames ; it is forged of iron, and plated if desired. The part which receives the ring for the pole chain is somewhat in the shape of a loop ; it has a gap at top for the admission or removal of the ring. The part, in which is the gap, is reduced for the reception of a strap whereby to attach a martingal. The link may be made without a gap, and the pole ring be allowed to remain permanently on.

[Printed, &c. Drawing.]

A.D. 1858, October 29.—N° 2413.

KIRRAGE, WILLIAM.—"An improved elastic combination of " materials impervious to atmospheric influences, as a substitute " for hard woods, metal, leather, or felting, and for other pur- " poses." The ingredients and their proportions for one hundred weight of the compound, which is to be employed as a substitute

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for heavy leather, are, india-rubber, 16 lbs.; tar, 25 lbs.; finely powdered chalk, 48 lbs.; hemp, 16 lbs.; sulphur, 10 lbs. The india-rubber is first brought into a pulpy state by a masticator, aided by a heated chamber; the other ingredients are then added and thoroughly incorporated therewith. For driving bands or traces for harness strands of hemp are to be introduced before the hardening process. The compound is rolled into bands of about half the thickness of the required article; the strands are then placed along the whole length, and the compound is rolled down, making the two thicknesses one solid body; it is then cut to the proper dimensions, placed in a steam chamber, and hardened by the action of steam of from thirty to fifty pounds pressure on the square inch. Instead of being submitted to the action of steam, it may be exposed to a temperature of 300° of Fahrenheit. In the Specification are detailed the ingredients and proportions for various other articles, differing in some respects from those given above.

[Printed, 4d. No Drawings.]

A.D. 1858, November 10.—N° 2518.

CORNER, JOHN.—“ Improvements in machinery for making “ metallic screw rivets, and for uniting with them parts of boots, “ shoes, portmanteaus, leather hose, buckets, harness, and other “ leathern articles.” The machine “ consists of an ordinary lathe “ bed 5 ft. long, mounted on the usual standards and furnished “ with a crank shaft, treadle, fly wheel, and speed pulleys, and “ with headstocks,” also with “ a bobbin, chuck, screw tools, and “ shears of peculiar construction, for carrying, advancing, and “ cutting the thread, screwing the wire into the leather, and “ cutting off the rivet when so screwed in.” There are two head- stocks, one of which carries the bobbin or reel on which is coiled the wire to be screwed. “ The reel is made of wood with metal “ sides, and is provided with a suitable arrangement for easily “ removing one of these for the purpose of slipping the wire over.” It also carries in bearings “ a chuck on which are mounted rollers “ having milled grooves for the purpose of advancing and turn- “ ing round the wire, the rollers being caused to revolve by suit- “ able gearing working into a stationary toothed wheel fixed in “ the headstock.” The chuck (either of steel or wrought iron) “ has an internal thread, corresponding to the thread on the coil

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" carrier, on which it is screwed, and by which it is driven. It
" has two grooves, which are at right angles to each other, and
" into which are fitted the four carefully turned steel rollers.
" These have grooves turned in the centre of the body, which are
" milled, and are of such a shape that they grip and slightly
" flatten the wire for making the rivets in passing through." The
two pairs of rollers are at right angles to each other. The other
headstock " carries the cutting-off shears, which are actuated by
" a cam fixed on a revolving shaft, and the length of rivets cut
" off is varied by altering the position of a band upon two cone
" pulleys, so as to vary the speed of the cam shaft. Provision is
" also made for stopping the screwing motion while the cutting
" off is being performed. The main object of the wire being
" caused to advance and revolve at the same time is, that the
" boot, shoe, or other article need merely be held steady with a
" previously drilled hole opposite the advancing wire, and the
" latter will make its way in until a sufficient length has pene-
" trated, when the machine itself performs the cutting off; and
" the screwing motion being stopped for a short time, as before
" mentioned, gives an opportunity for placing another hole oppo-
" site the wire before the latter has advanced beyond the shears." The
action of the machine, its various parts, the connection of
one part with another, the form of shears for cutting the wire,
and the advancement of the shears by a curved wedge while the
shearing is performed, and the arrangement for detaching the
screwing apparatus while the cutting is being effected, are
minutely described in the Specification. There is also detailed
machinery "for marking and indenting equidistantly leather or
" other material " to be riveted together; but the patentee states,
" although I find this machinery convenient in use, I do not
" desire to claim its exclusive use, neither do I claim uniting
" together parts of boots, shoes, or other articles by means of
" screw rivets."

[Printed, 1a. 10d. Drawings.]

A.D. 1858, November 13.—N° 2545.

WADSWORTH, JAMES.—" Improvements in the construction
" of moveable or adjustable heels for boots and shoes, and of
" spurs adapted thereto and to be used therewith." A ring fixed
to a back plate is screwed to the heel part of the boot or shoe. —

disc is screwed to a back plate and to the heel built thereon. On the inside of the ring and outside of the disc are corresponding projections and recesses. The ring and disc are of equal thickness, double that of a projection, so that when they are united and turned they fit accurately. Two broad shallow grooves cross the disc at right angles, opposite to the recesses: a spring in the heel part drops into one of the grooves and secures the disc in its place. At the ends of each groove is "a bevelled indentation;" and, when it is required to remove the disc, a pin is thrust through a hole in the ring and the indentation opposite it, thereby raising the spring clear of the groove. The spur is made with a hoop which encircles the ring; the latter "is turned down a little so as " to leave a small flanch or overlap" to confine the hoop above, and the back plate of the heel, projecting beyond the hoop, confines it below. To prevent the hoop from turning round, a pin or screw is inserted through a hole therein into the hole in the ring.

[Printed, 8d. Drawing.]

A.D. 1858, November 13.—N° 2553.

LAVATER, MANUEL LEOPOLD JONAS.—"Improvements in the " manufacture of mats, coverings for floors and other surfaces, " and other cellular articles, when india-rubber compounds are " used." Sheets of sulphurized rubber are rolled out or otherwise produced, each of the desired thickness; portions thereof are punched or cut out, leaving a cellular fabric with solid walls: the pierced sheets are then submitted to the curing process. A back may be applied " by affixing thereon a sheet of india-rubber " or india-rubber and canvas to one side of the pierced fabric " before vulcanizing." Beds, pillows, seats, saddles, cushions, brushes, and similar articles, are made in like manner. If the thickness required is too great to be punched through, two or more pierced sheets are cemented together before vulcanizing. The cells may be made in moulds or dies in the following manner: —an iron plate, with a raised edge all round and of proper depth and dimensions, is pierced through with holes to receive the stems of a number of studs: a sheet of sulphurized rubber, warm from the rolls, is laid on the studs and passed between a pair of rollers so adjusted as to force the rubber into the spaces between the studs: a plate is then placed over the mould, and the rubber therein is vulcanized.

[Printed, 8d. No Drawings.]

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A.D. 1858, November 15.—N° 2568.

BUNTING, JOHN GOLDING.—“A mechanical horse-tamer or “brake.” This brake is composed of a post, or socket and post, with a pin at top; two poles from twenty-five to thirty feet long, each having at one end a hole to drop on to the pin, and on the other an axle which carries a cart wheel; two cross pieces or shafts secured in any convenient manner to the poles; and a prop attached to the hinder pole by a ring and staple. The horse is placed between the shafts (the one nearer the wheels having been temporarily removed) and belly bands and kicking strap are buckled on. A dickey may be erected on the hinder pole. For more docile horses a square cradle with four wheels, having a pair of shafts in front and a dickey behind, may be substituted for the above. A steady horse is placed in the shafts, and both horses are driven tandem fashion. As the shafts of the cradle should reach “just to or “above the shoulder point,” their height is adjusted by an additional piece of wood.

[Printed, 10d. Drawing.]

A.D. 1858, November 17.—N° 2597.

CLARK, WILLIAM.—(A communication from *Leonard Vareille and Louis Henry Drevet*.)—(Provisional protection only.)—“An “improved bit or bridle for horses.” This invention is applicable to ordinary bits for both saddle and draught horses. It is composed of an extra noseband of metal, lined with a removable pad, and joined at its extremities to a strap which passes round the horse’s head; two levers jointed to the noseband, and terminating each in an open spoon bill for stopping the nostrils; two small cams, one on each lever; two springs fixed to the noseband, each acting on a cam and tending to keep the levers in position; reins buckled to the levers; straps having each two arms (one oblique, the other horizontal) which connect the levers to the customary noseband and cheek straps; and two screws, one on the upper end of each lever, which allow of the removal of the straps.

[Printed, 6d. Drawing.]

A.D. 1858, November 18.—N° 2605.

OAKES, JOHN.—“Improvements in the manufacture of spurs.” This invention consists in manufacturing spurs by stamping them into form in suitable dies, instead of shaping them by hand. The

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first process is to weld on a bar of iron of any suitable section a piece of iron to form the neck, at right angles and about midway of its length. The blank is heated to a red heat, and is placed in a series of dies, five in number, and reheated twice during its progress, before it is ready for dressing and finishing. Three sheets of drawings of the several parts of the dies are added to the specification.

[Printed, 1s. 6d. Drawings.]

A.D. 1858, November 29.—N° 2709.

PERRARE-MICHAL, FRANÇOIS Socrate.—(*Provisional protection only.*)—“Improvements in the manufacture of bridles (without bits and without curb chains) for riding, driving, or “otherwise conducting horses.” The headstall is of the ordinary kind, except the noseband, which has inside a small piece of metal placed in the middle so as to press on the nose; the apparatus connected thereto consists of two pieces of metal joined together by a bar or bars; one passes over the nose, the other enters the mouth. The one passing over the nose is provided with two rings for the attachment of the reins. The apparatus is buckled to the headstall, “and at each side the “branch of the apparatus enters into a long loop made for that “purpose on either side.”

[Printed, 4d. No Drawings.]

A.D. 1858, December 14.—N° 2863.

BAKER, GEORGE WILLIAMS.—“An improved construction of “manger fastening,” whereby horses and cattle are secured to their mangers in such a manner that, on an alarm of fire being given, the animals occupying a long shed or range of stables may be quickly released without the necessity of entering the several stalls to disengage them. An iron plate, screwed to the wall of the stable or shed, has a rod hinged to it at bottom for the reception of the ring through which the fastening rope or chain is passed. At the upper end of the plate is a socket along which a tube slides, limited in movement and kept in position by a-projecting pin which enters a slot therein. The socket is slotted vertically to allow the upper end of the rod to enter a similar slot in the tube; this latter slot is continued at right angles: consequently by a movement endwise of the tube, the rod is locked

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and capable of being set free only when the slots correspond. When two or more of these fastenings are required for one saddle or shield, the ends of the tubes are tapped and united by lengths of iron gas piping. One end of the tube is carried through the wall and enclosed in a case fitted with a lever. The patentee describes two modifications, but adds that they are not as efficient as the above arrangement.

[Printed, Ad. Drawing.]

A.D. INN, December 31.—N° 30014.

MEIGHEM, JOHN HENRY.—(A communication from Charles Kipp.)—(Patentees protection only.)—"Apparatus for tightening and releasing the bellybands of riding saddles." The mechanism is contained in a flat metal box fixed to the right-hand side of the saddle. Cords or gut are attached to two pulleys and pass round them, the other ends extending through guide holes outside the bottom of the box, and terminating in loops, eyelets, or clasps, into which the similarly furnished ends of the bellybands are fastened. The pulleys turn on axes, and to each pulley or axis a toothed wheel is fixed; both wheels gear into a third, to which a ratchet wheel is screwed, and a spring click takes into the ratchet. The axis of the ratchet is square at the outer end for a key. To slacken the bellybands, a detent, retarded by the pressure of a finger, releases the ratchet.

[Printed, Ad. No Drawing.]

A.D. INN, December 31.—N° 30016.

NORMANDY, LOUIS A., June.—(A communication.)—"A new system of shaft tugs." The tug, which is buckled to the back-band, is an iron ring or band composed of two branches coupled by a hinge. In the moveable or upper branch a mortise is cut for the admission of a key on the other branch. To the immovable or under branch are affixed two rings, one for the attachment of the bellyband, the other for that of the breeching. In order that the tug may fit a shaft of smaller size, there is inside the moveable branch an iron tongue, which being pushed down by a screw on the outside, will bear against the shaft and steady it.

[Printed, Ad. Drawing.]

1859.

A.D. 1859, January 1.—N° 22.

LÉVÈQUE, ALEXANDRE LOUIS.—“An improved apparatus for “subduing or stopping runaway or restive horses.” This apparatus acts on the horse’s sight. A wire is bent into a frame similar in form to the blinker, but rather smaller; one of the sides is provided with, or forms, a spiral spring which serves as a pivot and tends to open the frame. A small catch, fixed at any suitable point of the blinker, keeps the frame in position and allows it to act when a rein attached to the catch is pulled. Between the frame and the inside of the blinker is a piece of any suitable tissue, “arranged after the manner of the side or flap of a port-“monnaie, so as to be concealed from sight when the frame is “out of action, and to be developed when operating.” This arrangement is for draught horses. For saddle horses, a band of metal is put round the head under the headstall; at each end of the band is a pivot, on which a “sight guide” moves up and down; it consists of a small frame of iron work covered with a piece of tissue; on the pivot is also a small lever, which actuates the sight guide, when the rider pulls a rein fastened to the free end of the lever.

[Printed, 8d. Drawing.]

A.D. 1859, January 4.—N° 34.

HOOD, WILLIAM.—“Improvements in racks and water cisterns “for stables.” A grating, by preference of india-rubber or gutta percha bands in a frame, but it may be of iron bars, is fixed over the rack to the top plate by two spring hinges; this arrangement hinders the horse from drawing out the hay wastefully. The cistern has a cover—a perforated plate or grating is best—“which “works in and rests on slots formed at the back of the cistern “and rests on a flange or ledge formed on the front thereof;” the edges are covered with gutta percha or like material to prevent noise and the chipping of the enamel. The manger is provided with a flange projecting inwards round it, so that the corn or chaff may not be thrown out. The top plate is supported on tubular brackets, within which the halter balls are placed. The balls should be covered with india-rubber, leather, or the like.

[Printed, 6d. Drawing.]

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A.D. 1859, January 5.—N° 42.

CORFIELD, WILLIAM, the younger.—“Improvement in chains, “ for coupling cranes, cables, mining purposes, hoisting, and all “ other purposes where chains are used.” The chains are made with double links, so connected as to form two distinct sets, each set forming a perfect chain. If required for a double strain, the links are of equal length; for a single strain, and in situations demanding great security, one set is a little longer than the other, so that the longer may bear the strain, if any of the shorter should break. The patentee also constructs chains “in single or alternate “ lengths with the usual known methods of single and double “ parallel links,” and joins them to other contrivances that may be required under particular circumstances. These chains are well adapted for harness, headstalls, and harness, amongst the “other purposes” mentioned in the title.

[Printed, &c. No Drawings.]

A.D. 1859, February 10.—N° 379.

INGER, HECTOR.—(A communication from *Edouard Hauchd.*)—(Provisional protection only.)—“Improvement of blinkers used “ by horses when drawing, to be called the ‘patent safety “ ‘blinker.’’’ The part of each blinker next to the eye is hollowed out; in the hollow is placed a flap of leather, metal, or other material, moveable on a hinge, beneath which are two springs of india-rubber or steel tending to keep the flap open in its position. To each flap is fastened a strap, united to another which passes round the neck and is connected to the driver’s hand, or to a hook on the carriage, by a rein.

[Printed, &c. Drawing.]

A.D. 1859, February 28.—N° 529.

JOHNSON, JOHN HENRY.—(A communication from *Madame Achet.*)—“Improvements in apparatus for stopping horses.” The apparatus, which is to be applied to the nose, so that the pressure may be at the point “situate just below the intersection of the “ chanfrin bone with the lachrymals and lower jaw bone,” is constructed as follows:—a pad is fitted to each end of a steel blade spring, which is riveted in the middle to the noseband; both spring and pads are enclosed in a case strengthened internally by

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a metal plate, and attached to the noseband by a bolt or pin, the whole being covered with leather so as to resemble the ordinary noseband. The noseband itself is a steel band open at each side for the free passage of the pads, which are acted upon by a rein passing through a ring at each end of the spring, through a ring on each side of the noseband, along the interior thereof, issuing through an opening on each side of the case, and crossing through a ring at the back, up to the rider or driver. The apparatus may be differently arranged in some respects without altering the principle of the invention, and three modifications are detailed in the Specification.

[Printed, 8d. Drawing.]

A.D. 1859, March 2.—N° 548.

VALDA, JOHAN. — (*Provisional protection only.*)—“Improvements in studs and other like fastenings for dresses, belts, or other purposes.” This fastening is composed of two parts; the upper one is a mushroom or other suitably shaped stud with a hollow shank, having the lower end open and the inner side of the edge formed with a collar. The under part is a plain button head or any suitable flat or raised figure, having a hollow vertical shank springing from the centre of the back and fitting into the shank of the upper part. In the vertical shank one or more spring catches expand laterally out of the side, so that, when the under shank is inserted into the upper, the catches abut against the under side of the collar and unite the parts. The springs are acted upon by pins. This invention may be modified so as to be applicable to harness, draperies, and binding studs.

[Printed, 4d. No Drawings.]

A.D. 1859, March 10.—N° 621.

YUILL, JAMES.—“Improvements in saddletrees,” for cart harness. The trough or curb is either cast or forged all in one piece, or of ordinary malleable iron or other metal put together with rivets or screws. The sides are strengthened by raised ridges, and screwholes are bored in one side for the admission of eyes, to two of which the breeching hooks are fastened. The inner part of the trough is filled with wood in two or more pieces secured by vertical rivets or screws. The trough “has the usual end plate pieces for the play of the chain or band.” In one modification, the

trough is of wrought iron, and the end plates are welded on: the metal at the sides of the trough is cut inwards to the extent of about five-eighths of an inch and turned up at right angles: the middle part (which may be in two pieces) is riveted to the under side of the wood, which in this case is made in one piece: the raised ridges are riveted to both the turned up parts and the wood: the upper edges are strengthened by tubular ridges sprung on them. In another, the trough consists of two side pieces riveted to a bent piece of metal which is riveted to the wood: the ends of the bent piece are bent over and beaten down, thereby covering the wood and increasing the strength and thickness of the trough "to meet the lateral wear of the chain."

[Printed, *Ad. Drawing.*]

A.D. 1859, March 14.—N^o 640.

WALLER, RICHARD.—"Improvements in joining leather, flexible and textile materials for the production of boots and shoes, and articles of the like description, and harness, strapping, bags, sails, tent covers, portmanteaus, and such other articles, together with machinery and apparatus for that purpose." The Specification describes especially the machinery for manufacturing boots and shoes, parts only being required for punching and rivetting harness, &c. The machinery is composed of blades for cutting soles; steam-tight troughs with chambers for moistening the soles; a press, rollers, or beaters; a pressing or sole plate; awls; plungers; clamp block and box; slides; sliding frame worked by rack and pinion; frame moving at about right angles to slides and sliding frame; pulleys; bobbins round which the metal threads or wires are wound; box fitted with rollers so as to draw down a certain length of wires—the length is regulated by a ratchet and passed through tube guides to a rivet guide—hand saw with driving pulleys, capable of moving with the frame and cutting off a given length of wires at a point between the tube guides and the rivet guide; an arm sustaining the rivet guide and swivelling by a joint so as to carry the rivets to the sole plate; and a presser block; all suitably arranged with their necessary appendages. The clamp block, which is formed in two or more pieces, is composed of a place for the boot; welting sides perforated or serrated to leave space for the rivets; levers which force the welting sides to lap the upper leather, and which are actuated

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by shafts and mitre wheels; and handles to lift the clamp block out of the box. The articles are finished off by spiral cutters, and burnishers which have hot air, water, or steam, conveyed into their spindles. A number of boots and shoes can be made at one time. Very full details of the arrangement of the above parts and of the method of manufacture are given in the Specification.

[Printed, 1s. Drawing.]

A.D. 1859, April 7.—N° 867.

POSTLETHWAITE, ROBERT.—"An improvement in harness "pads for horses." The iron frame, upon which the pad is made, is provided with hinges either made in one piece with the frame or secured thereto. The pad is thus rendered flexible and fits a horse of any size or form.

[Printed, 6d. Drawing.]

A.D. 1859, April 9.—N° 890.

HAWKINS, JOHN.—"Certain improvements in the manufacture "of stirrups, bits, spurs, buckles, and other such like articles "connected with harness and saddlery." The invention claimed is the manufacture of the above articles by "cutting out, piercing, "bending, and forming." The top and sides of a stirrup are made from a strip of iron or steel; the holes are pierced out; the sides are heated, laid in a die, and a blow from a stamp hammer gives the desired form: the foot is fashioned in a similar manner and welded on. The spring bar, on which the stirrup leather rests, is cut from sheet iron or steel, and heated and struck into form in a die, the slot for receiving the spring and guard being cut by a circular saw. The cheek of a bit is made in two parts; each is pierced and stamped, and the two are welded together. In the mouthpiece of a bradoon bit each part is struck into form (while red hot) in a die: the swivel attached to each ring is made in like manner. The top part of the cheek of a bit, such as is used for cavalry bridles, is drawn out "into a thin part forming a spring," over which is passed "an improved loose top eye," formed in a die by stamping or striking. Or the top of the cheek may end in a hook, against which a piece abuts, jointed to the cheek and acted on by a spring. To form a spur, a rod of iron or steel is slotted in a hot state to admit of its being opened at the same time; it is reheated and placed in a die of such shape as to produce ears,

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shank, and heel pin in one piece. The frame and tongue of a buckle are formed in dies, each with a broad flat part for receiving a spring.

[Printed, 1s. 6d. Drawings.]

A.D. 1859, April 23.—N° 1018.

ANGUS, JOHN.—"Improvements in saddles," particularly in cart saddles. The trough is composed of two metal vertical side pieces, the upper edges being bent over to form a hollow heading, and the lower parts being bent inwards to form parallel flanges, in each of which are holes for rivetting the side pieces to the contiguous parts of the saddle. In the side pieces are holes opposite each other for the reception of the ends of stay pieces, to which the bottom piece is riveted. Two pieces are fastened to the inner faces of the side pieces at the ends to prevent the lateral wear of the chain on the trough. The under side of the trough is filled in with wood, and attached to longitudinal pieces of wood forming the main portion of the saddle. The head or gullet is a strip of malleable iron curved upwards, and to the under side thereof is riveted another strip, the ends of both extending outwards to, and secured to, the lateral edges of the longitudinal pieces, which are connected by a broad metal breech piece, and whose sides are enclosed by a metal band. The hooks for the attachment of the harness are joined by staples to the trough at the outer face of the hinder side, and the eyes and rings are fastened on below the expanded ends of the bottom piece. Modifications of this arrangement are detailed in the Specification.

[Printed, 1s. Drawing.]

A.D. 1859, May 10.—N° 1169.

WILKINSON, WILLIAM, and WHITLEY, CHARLES.—"Improvements in buttons and fastenings for garments, harness, &c. and other similar purposes, and in the method of securing the same." The shank of the button is a piece of metal slotted so as to form two or more prongs; or it may be composed of two or more wires springing at once from the middle of the inner part. The shank is thrust through a hole in the article to which the button is to be attached, and the prongs are bent over with or without the addition of a washer.

[Printed, 1s. Drawing.]

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A.D. 1859, May 11.—N^o 1184.

VASSEROT, CHARLES FRÉDÉRIC.—(*A communication from Louis Marque.*)—(*Provisional protection only.*)—“An improved “musrol or noseband for horses’ bridles.” The noseband is a bent steel spring, covered with leather, and having at each end an olive which projects inside the arc formed by the spring. “This “spring surrounds the horse’s nostrils, its open end, with the “olives, being placed in front of the nose; when the spring is “not acted upon, the two olives press against each other, but “when it is drawn backwards by means of a string passing “through a ring at its back, they are separated,” and press upon the nostrils. A chain, passing through rings near each olive, prevents the noseband from being drawn too much; and the spring is replaced in position by means of another string fixed to the chain.

[Printed, 4d. No Drawings.]

A.D. 1859, May 20.—N^o 1240.

VALDA, JOHAN.—“Improvements in stud fastenings, and a “system of ornamenting and adapting belts, cravats, ribbons, “draperies, and other articles to stud fastenings.” Provisional protection was granted for this invention, March 2nd, 1859, N^o 548; and the principle of making and fastening the stud is described in the abridgment thereof. In this Specification are detailed numerous modifications of the method of fastening the upper and under parts together; but that described in the above abridgment is the only one which the patentee states as capable of modifying to secure harness and accoutrements. The adaptation of draperies, &c. to moveable stud fastenings is effected by making eyelet or button holes in the draperies, &c., so as to form bows, knots, folds, or festoons, in combination with a single stud. Materials not suitable for tying, knotting, or folding together, as leather, metals, &c., can by this method be combined with draperies, &c., or be formed into ornaments by themselves.

[Printed, 8d. Drawing.]

A.D. 1859, June 1.—N^o 1350.

COTTAM, GEORGE HALLEN, and COTTAM, HENRY RICHARD.—“Improvements in stable fittings.” In order to form a good

connection between the partition post and the sill, the end of the latter is formed with a button or projection, which enters a slot or opening in the post and is locked to it by turning it one quarter round: the partition boards hinder the sill from rising. The ramps are wrought-iron bars bent into a wavy form; sharp edges are thus avoided. A top and bottom rail are cast on to the ramps; or the ramps are clenched to rails of wrought iron. To prevent the latch bolt from projecting when the door is open, the slot in which the bolt works is made of sufficient length to allow the bolt to fall by its own weight within the edge of the door: in some cases a catch is added, that the horse may not raise the bolt by rubbing against the handle within the stall. That such a manger as is "capable of turning into and out of the stall, swinging on a "vertical axis, and passing through an opening" in the boards of the stall, may not be left in an intermediate position, it is mounted on a falling hinge, or on an axis slightly inclined: the cover is arranged to fall below the level of the manger plate; and a recess is formed in the manger plate large enough to allow the edge of the cover to be taken hold of in order to draw it up. To avoid noise from the halter ball, it has a projecting flange or flanges of leather or other packing attached to it, and rises and falls within a tubular guide; it is made in two parts held together by knotting the halter above and below. On the block is made in three parts screwed together; the flange projects inwardly; and a rod passing through the block serves as a guide. (Gutter blocks of cast iron, and having the upper surface roughened, are employed in paving: the gutter is formed along the middle of the block and deeper at one end than at the other, to avoid the necessity of laying the pavement on an inclination. For the head of the stall enamelled plates of cast iron are used, presenting the appearance of tiles. The crupper bracket is so shaped that the crupper is kept in its proper curved form by being bent by its own weight and that of the other parts of the harness attached to it.

[Printed, 10d. Drawing.]

A.D. 1689, June 20.—N^o 1479.

COX, JOHN, FRANKHAM, SAMUEL, and FRANKHAM, MOSSE.
—"Certain improvements in spurs for military and general use." The arms have, each at one end, a pin which enters a side of the boot heel, and at the other a hole, through which a gilt *gouge*

uniting it to the shank. The shank terminates at one end in a conical pin which enters the back of the heel. A conical collar is tapped on to the shank, and by turning it the ends of the arms are pressed tightly against the heel. Or the collar may terminate in a pin for entering the heel: in the hollow of the collar, in this arrangement, is a helical spring "placed over a reduced part of the shank, exciting its force against a shoulder of the shank" and "the termination of the hollow part of the collar, in such a way that when the collar is pulled towards the rowel of the spur it will collapse the spring, and pull back the pin with it:" the inclined surface of the collar will press the arms together as before. Or the spring may be acted on by two side plates, which are united by pins working through slots on each side of the shank. Or the arms may be forged in one piece with the shank; in this case, notches are filed in the point pins, and the points of a steel spring screwed to the front of the heel enter the notches and increase the security of the fastening.

[Printed, 8d. Drawing.]

A.D. 1859, June 21.—N^o 1490. (* *)

GIBBS, STEPHEN.—(*Provisional protection only.*)—"Improvements in apparatus for slinging horses, mules, and other animals."

"The apparatus consists principally of a frame composed of four uprights, and suitable transverse and longitudinal braces supporting a bed or sling," which is raised or lowered as required, with manger, and padded adjustable breech bars. To turn the animal for veterinary purposes, a kind of trough is added, "consisting of a floor and two side boards, in which the animal stands," and to which its feet are hobbled. The floor is suspended on pivots, and is turned round by chains and a windlass, and "the animal turned bodily on its side;" cushions support "various parts of the animal."

[Printed, 4d. No Drawings.]

A.D. 1859, July 19.—N^o 1702.

RIDDEL, JOHN CHARLEY.—"Improvements in stalls, loose boxes, and enclosures for horses, cows, pigs, or other animals." The partition between the stalls is of cast iron or of wood and iron combined, secured by bottom flanges and attached to each other by tie rods, the upper of which secures, and the lower supports,

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the holder case. A slide, on which the cattle chain freely moves, is fixed on each side of the partition, and two flanges, "which form the seat and point of return for the holder or feeding" "case," are fast at the back, one on either side. The case is of iron or other material, "continuing when there is not room for a feeding passage in front of the cattle," projecting in front, slotted at the sides for ventilating the box, and provided with an opening near the bottom, about five inches wide, for the animal to feed from. The trough is placed immediately in front of and below the holder, it is of earthenware or cast iron; it has two ends and a middle division; the lip is turned inwards, thereby avoiding waste. The above arrangement is especially for cattle; but the holder case and trough or manger are equally adapted to horses stalls and horse boxes. When clamped dry, &c., to be used, the opening is closed by a hinged-plate, the food is thrown in at the top, and falls into the manger through an aperture at the back. In the manger plate are holes for a halter chain and a water trough; both manger and trough are furnished with plug and washer for flushing or cleaning. The plug moves up and down on a vertical rod. The holder case can be made of circular or other shape, suspended so that it may swing to and fro, or made to slide in grooves. A large one can be constructed on the same principle (suitable to straw-yards, stables, &c.) with a roof opening in the upper part for putting in the food, and with a pipe inside at the base.

(Printed, No. 161a.)

A. D. 1869, August 6. No 1700.

BOWLING, HOWARD. (Patentee unknown only.) "Im-
"provements in carpets or tapestries, applicable to banners, and
"for other purposes." This invention relates to carpet and tapestry
-ments of glass or porcelain, and consists in forming them with a
groove at the back for the insertion of a piece of leather, cork, or
other material, which is cemented thereto and forms the means of
attaching the carpet, &c., to the article to which it is to be ap-
plied.

(Printed, No. 161b.)

A. D. 1869, August 17. No 1701.

NEWTON, ANDREW VINEYER. (A communication from James
M. Mayes.) "Improvements in the construction of screens."
446.

" and in apparatus for guiding or reining-in carriage horses." By the arrangement and construction of the body and seats in the carriage, there is obtained, with a very slight increase of size, " ample room for nine, and, if necessary, ten persons, all so situated that they can converse freely, and none of whom, if limited to nine, will be required to ride with their backs to the horses, " while in the coupé at the back, and in communication therewith, there will be ample room for children and servants, and " all the conveniences of travel; and when used for travelling, in addition to the above conveniences, ample provision is made for baggage and seats for several persons outside." The mechanism for reining-in the horses is fixed to the footboard of the driving box. It is composed of a vertical shaft, fitted at the lower end to a step box, and sustained by passing through a brace from the driving box; a foot wheel, carried by the shaft, and having its upper face ribbed or so roughened that the driver can turn it either way with his feet; a wheel, secured to the upper end of the shaft and turning with it, and formed of two circular plates which are connected by screw bolts; friction wheels mounted between the plates near their periphery; and a pulley in the centre of the wheel between the plates, moving on an axle which fits on and turns on the upper end of the shaft. The axle passes through the central hole of the upper plate and carries a crank handle made in two parts which are jointed, so that the handle part can be lowered or raised to insert a pin therein into any one of a series of holes bored round near the periphery of the upper plate, or to draw it out. The reins pass from the horses through guide loops at the ends of a bar (connected by an arm to the shaft and by lips to the under plate) to the wheel, one on each side, round two of the rollers (which are larger than the others) and the pulley to which they are fastened. The driver can thus wind up the reins or let them out. The tension is graduated by a band of vulcanized rubber attached to each rein; and each rein is provided with a hand strap which enables the driver to guide the horses by hand.

[Printed, 1s. Drawing.]

A.D. 1859, September 17.—N° 2117.

LUIS, Jozé.—(*A communication from Cesar Bourdenet-Bouchot.*)—"A slip bridle for stopping runaway horses." On each side of the headstall is a leather pad, terminating in an iron ring to which

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two other rings are connected; to the one is fastened a collar strap supporting the apparatus; through the other (which is furnished with a roller) passes a rein from the rider's hand half round the horse's throat, then up again to the pad, where it is strongly sewn on. The connecting straps on the top of the neck are flat; the reins, which are united by roller rings under the throat, are round and smooth. By pulling the reins, the neck is pressed as in a slip knot, and the respiration is checked.

(Printed, *ad. Drawing.*)

A.D. 1859, October 5.—N^o 2264.

PRICHARD, JOHN.—(*Provisional protection only.*)—"Improvements in spurs." A large headed screw, having a deep slot cut in its head, is screwed into the heel of the boot. The arms fit round the square corners of the inner part of the heel: near the neck, on the inside, "is inserted a flat piece of metal or lug, " moving in an out of a slot cut therein, by means of a screw nut " placed on the neck of the spur, said lug having a thread cut " on its outer edges only, and having a pin passed through its " centre slot." The spur is applied by hooking the arms inside the heel and screwing the lug into the head of the screw in the heel. The patentee also proposes to place a screw in the heel, projecting slightly therefrom, and having a thread cut on the projecting part and a hole bored in the middle, wherein the end of the neck is to be placed; "this neck has a collar formed near " the end, to prevent the screwed nut falling off." When the spur is taken off, a cap is to be screwed on to the projecting part.

(Printed, *ad. No Drawings.*)

A.D. 1859, October 11.—N^o 2309.

EARL, JOHN.—"Improvements in arranging and applying " harness to the draft of carriages," that is to say, single horse carriages. The back and belly bands, breeching, traces, and other parts which connect the horse with the carriage, are all buckled, or otherwise united, on each side to a tug formed for this purpose. The shafts, having a suitable apparatus fixed to each, are attached to the tugs by a spring bolt, which is kept in position by a spiral spring and pulled out by a milled head thereon, the spring acting to move the bolt into position again, when released. The bolt may be connected with either the tug or the apparatus on the

shaft; in the latter case, it is formed with axes which move in bearings fixed to the shaft. If a kicking strap be used, an additional apparatus will be required; or it may be attached in the ordinary manner.

[Printed, 10*d.* Drawings.]

A.D. 1859, October 31.—N° 2485.

HOLMES, JOSEPH.—“An improved halter block for stable purposes.” The object of this invention is to detach the block from the halter more speedily than heretofore. The block is made in two halves, hinged at the back, and fastened in front by a spring catch. Within is a channel for the halter to pass through, and in the channel is a pin which takes into any one of the holes in a flat leather or hemp halter, or into any link in a chain. The point of the pin presses against a pad of elastic material. This block may be employed with rope halters by knotting the rope at intervals, the block being held between two contiguous knots, which perform the office of the pin. Or the block may be made in one piece; and the pin, formed on one end of a catch, may be acted upon by a spiral spring.

[Printed, 6*d.* Drawing.]

A.D. 1859, November 7.—N° 2530.

PACEY, GEORGE.—“A rein handle and holder, applicable for riding or driving either for single, double, or team reins.” The handle is a hollow tube, having at each end a clip through which a rein passes and is held in the desired position by a small rod. The rods move in and out of the clips by the following mechanism: one rod is secured to a nut by a pin which passes through the nut, a slot in an inner tube, and a hole in the outer tube; in about the middle of the inner tube the other rod is fastened and surrounded by a helical spring which is held in by a nut flush with the other clip; this clip is joined to the outer tube, the other to the inner tube; consequently, by pressing the thumb against the last-named clip the handle will be elongated, the clips will be forced from the rods, and the reins can be taken out. For double harness, tandem, or four-horse teams, the handle is made by preference of a semicircular shape, one end to be attached to the reins of the fore horse or horses, the other to the reins of the shaft-horse or *wheelers*. The reins thus connected are passed over or between

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friction rollers on the foot board or driving box, so that they may readily be attached to "an elastic holder capable of sufficient expansion or contraction to allow the horse or horses a sufficient amount of freedom." For the use of equestrians, the handle is hooked to an elastic band which passes over a friction roller and through the saddle, and is looped to a staple at the back. These arrangements may be modified in some respects, and some of such modifications are described in the Specification.

[Printed, 16d. Drawing.]

1860.

A.D. 1860, January 25.—N^o 167.

RAMM-PACIUK, Tadeusz, and NOCHMIDT, Christopher Fabian.—"Preparing wire gauze to render it applicable to various purposes." The meshes of the gauze are filled with either gummy or metallic substances, or partly with the one and partly with the other; the gauze is afterwards covered with leather or other suitable fabric. The filling with metal is accomplished either by immersing in molten metal or by the galvanic battery; the gummy substances are applied hot or in a state of solution. For straps, either ordinary wire gauze is used, or metallic gauze without web, or metallic gauze the meshes of which are in part filled with metallic substances, or metallic gauze with its web made of a vegetable or animal substance; the web should be separated, and the warp threads or wires close together. For girths "on each side several threads are passed into the same tooth of the comb, and by this means we obtain a kind of selvage, which gives great strength to the strap."

[Printed, 4d. No Drawings.]

A.D. 1860, January 27.—N^o 167.

PONCON-JANDELIZK, B.—"An improved eye-flap, designed to stop horses which have taken fright, by depriving them of sight." The blinker is formed concave, and round the part which is to cover the eye a piece of caoutchouc is stretched and confined by a metal ring riveted to the blinker. At top and bottom of each blinker is a metal tube; a cord passes through the

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bottom tube of the left blinker, across the nose and through the bottom tube of the right blinker; another cord passes through the top tube of the right blinker, across the nose and through the top tube of the left blinker: the cords unite behind with a rein, by pulling which the blinkers act on the eyes.

[Printed, 10d. Drawings.]

A.D. 1860, February 3.—N° 282.

HOWES, WALTER, and BURLEY, WILLIAM.—“A new or “improved method of attaching lamps and whip sockets to carriagés.” The socket iron for both lamp and whip terminates in a ring, in the interior of which is cut a female screw. On the lamp socket, immediately below the body, and on the whip socket (by preference at the middle) is cut a male screw: the sockets are placed in the rings and screwed thereto. The accidental unscrewing of the lamp is prevented by a strap being passed through a loop on the lamp and round the socket iron and buckled in that position.

[Printed, 6d. Drawing.]

A.D. 1860, February 4.—N° 292.

MENNONS, MARC ANTOINE FRANÇOIS.—(*A communication from A. L. Dezaux-Lacour.*)—“An improved means of joining surfaces of leather.” The surfaces to be joined are roughened and coated with a cement prepared by boiling together gutta percha clippings with half the weight of oil of petroleum: a strip of gutta percha, softened by heat, is laid on one surface, the other is placed on top, and the adhesion is completed by pressure. For driving bands and similar articles, the ends are bevelled off, and a slanting notch is cut in one thickness: the notch is besmeared inside with the cement; the other end and the strip of gutta percha are inserted, and the whole is submitted to pressure; the extreme ends are joined by eyelets or by a coupling plate. Impermeable leather tubing may be manufactured by the above processes.

[Printed, 6d. Drawing.]

A.D. 1860, February 8.—N° 339.

BEARD, WILLIAM.—(*Provisional protection only.*)—“Improvements in adapting beadwork and buglework to harness and

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"whip handles." The heads or bugles are strung on wire (connected brass wire being preferred), and the wire is then twisted or bound round the article. Or the wire may be applied, and the heads or bugles be strung on as required to produce the pattern.

(Printed, &c. No drawings.)

A.D. 1860, March 8. - No 108.

VICAT, THOMAS. "Improvements in manganese." The body of the comb is strengthened by two additional ribs or corrugations theron, either straight or curved. The bars are made by rolling, pressing, or stamping. A heated iron bar is rolled into such a form that it is nearly wedge-shaped in transverse sections; or it is rolled for the most part thin and with a strong shoulder on the upper edge. The bars are then cut into suitable lengths; and the ends by which they are secured to the body are fashioned by rolling, pressing, or stamping. The thin edges are rounded in the usual manner. The bars are sometimes made by stamping or pressing in dies.

(Printed, &c. Drawing.)

A.D. 1860, March 9. - No 109.

HIGGISON, GUTHRIE. "Certain improvements in am-
"mending spars and other metal portions of artillery and har-
"ness furniture, and which said improvements are also applicable
"to amending other fancy articles made of wrought or cast
"metal." This invention consists in a method of "setting,"
"imbedding, or inlaying artificial or natural gems" in the articles
named in the title. The process is as follows: - a tool of such
shape is caused to rotate in a lathe or any revolving instrument that,
when a plate is brought up to its face, a cavity is formed in
it with an annular vertical rim thereon; the tool is taken out and
another put in its place; the gem is inserted into the cavity; and,
when the plate is brought into contact with the tool, the rim is
caused by it to contract and grasp the gem. The amending is
accomplished by the same tool and at the same time as the
setting.

(Printed, &c. Drawing.)

A.D. 1860, March 17.—N° 713.

JOHNSON, JOHN HENRY.—(*A communication from Henry Crane.*)—(*Provisional protection only.*)—“ Improvements in apparatus for controlling refractory horses.” The apparatus consists of a bit so constructed that it acts as an ordinary bit, except when the reins are pulled with considerable force. The mouth piece is grooved to receive inside it a slender bar, or two bars jointed in the middle. When one inner bar is used, it is connected by a helical spring at each extremity to the cheek pieces, and is retained in the mouth piece until the pull of the reins overcomes the force of the springs; if two bars are used, they are retained by a blade spring. The action in either case is the same; if the horse gets the outer bar between its teeth, the inner bar or bars “ advance and act upon the muscles of the mouth.”

[Printed, 4d. No Drawings.]

A.D. 1860, March 21.—N° 737.

NEWTON, ALFRED VINCENT.—(*A communication from E. Biechy.*)—(*Provisional protection only.*)—“ An improved construction of bridle.” The rein is connected to the bit on each side at two points, one level with, or a little below, the line of the mouth piece, the other at or near the lower extremity of the cheeks; it is joined directly to the latter, and to the upper points by the intervention of an elastic band on each side. “ When it is necessary to rein in a restive or runaway horse, the extra exertion of the rider or driver will draw the slack parts of the rein to tension (the elastic bands yielding for that purpose), and thus the rein will pull with an increased leverage equal to the distance from the upper to the lower point of connection between the rein and the bit cheeks.”

[Printed, 4d. No Drawings.]

A.D. 1860, April 20.—N° 988.

SEBILLE, CHARLES FELIX.—“ A non-metallic composition to be used in the manufacture of water, gas, and other pipes or conduits, and machinery or apparatus to be used in such manufacture.” The basis of the composition is waste slate pulverized; but, where slate is not procurable, pulverized sandstone, ground scoria, powdered sand, or coal cinders are used

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instead. The proportions of the compound are, slate, 70 to 80 per cent.; resin or vegetable pitch (rectified), 20 to 30 per cent.; dissolved camphor, 1 per cent.—the last is optional. Or, resin, 28 lbs.; slate, 74 lbs.; pigs' bristles, 1 lb. Or, pitch or resin, 28 lbs.; sea sand, 37 lbs.; sulphur, 5 lbs.; vegetable fibre or animal hair or bristle, 2 lbs. (seaweed or other matter may be substituted, so that it be fibrous and tenacious). When the matter so composed has been thoroughly triturated and mixed and gently heated, it is placed in a metallic mould (also slightly heated), and submitted to pressure. If a socket be not moulded with the pipe, the ends may be soldered with some of the same composition, a little wax being added thereto. If the pipe require curving, the part to be curved is slightly heated. One machine is composed of a mould; a former moved by a screw; a rack serving to push and draw a mandril; and a framing on rollers on which the mandril moves when withdrawn from the mould. A second, of a mould press, the upper part being pressed upon the lower by screws moved by wheels, pinion and crank; and a hydraulic press and piston. For jointing and bringing together two pipes, pincers are employed, jointed at top and having their sides capable of expanding and contracting by means of a screw. Details of the above will be found in the Specification, as well as of moulds "for forming and compressing the junction of pipes at 'right angles.' " The composition is applicable to the manufacture of many other articles "too numerous to mention," and amongst them to that of mangers.

[Printed, 18. M. Drawings.]

A.D. 1861, May 8.—N^o 1136.

McDONALD, WILLIAM.—"Improvements in military saddles" and in stirrup irons to be used therewith." The saddle-tree is dispensed with; the gullet is formed with a piece of iron to give the necessary purchase in mounting and dismounting and to keep the various parts in their places; the upper part or seat is made of one piece of leather blocked to the required shape and sewed or otherwise fastened to the sides; and the pannet is made to fit each side of the horse's back, the ends extending under the cantle and thus adjusting themselves to the seat of the rider. One strap only is required for the stirrup iron; the strap is fastened to a square cross piece, "which unites the upper part of the stirrup

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“ iron, but which moves in a square slot, cut one on each side of the upper part of the iron, said slots having circular holes at their bottoms of the same diameter as the points of the square cross piece, so that when the straps are required to be shortened or lengthened, the cross pieces have but to be drawn down into the circular holes, when they will revolve freely by the motion of the fingers.” The upper end of the stirrup strap is turned over and sewn down, forming a loop through which a metal D-hook passes; upon this also are placed the girth and breastplate straps: the ends of the hook drop into holes in two stud pins on each side of the gullet. The girth is a wide band of leather or other material, divided up the middle at each end about one-third of its length, thus forming straps, one to fasten to the front and the other to the back of the saddle. The kit is to be arranged in a loose flexible valise, carrying the shoes and tools in its middle, or the same may be attached to the gullet, the valise being placed over the entire front of the saddle.

[Printed, 4d. No Drawings.]

A.D. 1860, May 19.—N° 1234.

DAVEY, SAMUEL.—“ Improvements in fastenings for attaching buttons, studs, brooches, or other ornaments and fastenings to articles of dress, and for other uses.” This invention can be applied to connect parts of harness together; it consists in affixing to the backs of buttons, &c., two projections in the form of hooks side by side, the points being placed in opposite or nearly opposite directions, so that a secure fastening is obtained by passing one hook through one part, and the other through the other part of the article to be united. For merely connecting parts of dress, &c., the fastening is “ formed by two hook-shaped instruments or ends,” with the points as above, either sharp to pierce the fabric, or blunt to pass through eyelet holes.

[Printed, 6d. Drawing.]

A.D. 1860, May 29.—N° 1318.

DUFOSSÉ, EUGÈNE.—“ A system of skeleton or framework with continuous free air currents, applicable to the construction and improvement of seats of any description, mattresses, saddles, and upholstery generally, with a view to render them ‘hygienic.’” The patentee constructs a framework having

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horizontal channels for free air currents : the channels, according to the article to be manufactured, are of wood or metal, and of different shapes : the framework is fitted with elastic springs ; it may be of wood, india-rubber, or other suitable material. In saddles, whether for men or women, the framework is fixed upon the seat ; it is made of leather, steel, or "other pliable material" "that may be put into the shape of each particular kind of saddle." It is covered by a set of small quarters, "whose extremities hang over the large quarters on each side of the saddle" "and receive the legs of the rider ;" it is applicable to ordinary saddles. The methods of constructing the framework and channels of all sorts of seats, mattresses, and cushions, are fully detailed in the Specification, accompanied by numerous drawings.

[Printed, 1s. Drawings.]

A.D. 1860, May 29.—N^o 1320.

GULLICK, THOMAS.—"An improved spur box," in which the spur shank is inserted higher up in the heel of the boot than heretofore. To effect this the spring door is formed in the upper portion of the front plate of the spur box with its hinge downwards, the spring for actuating the door being placed at the lower part of the same, whilst the catch or retaining spring is secured to the top of the box. The patentee describes the usual contents of spur boxes, claiming only the above arrangements of the parts as necessary to carry out his object. Ordinary box spurs can be used with this invention.

[Printed, 6d. Drawings.]

A.D. 1860, June 2.—N^o 1362.

SMITH, WILLIAM WILMER HENRY.—"Improvements in the mode of and apparatus for preparing leather for harness and boot and shoe manufacturers." This invention is especially applicable to preparing leather for blinkers ; it consists in giving them the required convexity by steeping the leather (stamped out to the proper size and shape) in water, and subjecting it to pressure in heated metallic dies and counterdies. Soles for boots and shoes are prepared in a similar way ; the sole is stamped out, using a fly or other press to force the punches through the leather, the pieces cut out are saturated with water, and then subjected to a pressure of from forty to eighty tons, for from twenty to forty

minutes, between plates or dies heated to about 95° Fahrenheit. The heels are composed of pieces of leather prepared in like manner, piled one above the other and cemented together.

[Printed, 4d. No Drawings.]

A.D. 1860, June 12.—N° 1438.

HYDE, ROBERT.—“Improvements in apparatus for draining “stables.” The draining is effected by means of a box or pot let in flush with the stable floor, and joined to or made in one piece with a syphon pipe which forms the trap and drain pipe leading to the sewer. A service pipe, connected to the side of each box, enables the whole series of drains to be flushed simultaneously. A perforated plate, having cross grooves on its surface, is fitted on to the top of the box; and “where water is “not laid on, or when the fall is not great,” a more finely perforated plate may be introduced at the mouth of the syphon to prevent the entrance of chaff and small refuse matter.

[Printed, 6d. Drawing.]

A.D. 1860, June 22.—N° 1519.

GEDGE, WILLIAM EDWARD.—(*A communication from Auguste Duchêne.*)—(*Provisional protection only.*)—“Improvements in “saddlery and harness.” The headband is made double, enclosing an elastic veil, at each end of which is a ring on a metal rod which lies along one side of the headstall near the noseband. “To these rings are attached the safety reins, which slide along “the bridle, passing thence over a small covered pulley, and “resting upon the neck of the horse.” When the veil descends by pulling the reins, the rings fix upon two hooks near the bottom of the rods. On alighting, the rider removes the rings from the hooks. “Another system consists of an oval plate, somewhat “larger in circumference than the eye of the horse, and which, “in order to play right and left, and up and down, must have one “oblique and three horizontal openings.” A small tumbler is rivetted, “so as to allow the escape of the hook of the counterpart, “and at the bottom of it is an opening in which is placed a metal “rod forming a ring at the lower end, to which the reins are “adjusted. A steel spring receives from the pull upon the tumbler “a pressure which, as soon as the escapement has taken place, “drives the tumbler back to its original position.” At the side

of the tumbler, and on the oval plate, is an opening through which a cord passes. For this system there must be a hollow rein, and within it a small cord. By pulling the rein the rod presses upon the spring and causes the escapement. Rivetted to a spiral spring is an oval wire plate, "padded so as to exclude all light" from the eye of the horse." In carriage harness a spiral spring is placed on each blinker, also a plug or pad which covers the eye when the spring is acted upon. A rod passes through the blinker and is rivetted to the pad: a tumbler, with or without a pressing spring, keeps the rod in its position: or the tumbler may be forked, forming hooks which press upon the crosspiece of a spring.

[Printed, 4d. No Drawings.]

A.D. 1860, July 11.—N° 1669.

WALKER, ROBERT.—(*Provisional protection only.*)—"Improvements applicable to horse bits." The rein is connected on each side to the bit by two short straps, one being fastened to the cheek, the other to the lower end of the bit; the former is elastic, and the two are so proportioned that the strain does not act upon the latter until the former is somewhat elongated. Or the rein may be connected on each side to a lever jointed to the lower end of the bit and held by a spring. The effect in either case will be the same: the direction of the strain varies "and acts with increased leverage as the reins are pulled with increased force."

[Printed, 4d. No Drawings.]

A.D. 1860, August 3.—N° 1881.

STRADA, EUGÈNE ARMAND, COMTE DE.—"Improvements in horses' bridles." The invention consists of an apparatus for temporarily stopping a horse's nostrils, either in saddle or in harness. The front of the noseband is of hoop iron or other suitable sheet metal, and to each extremity a small plate is rivetted, provided with a slot near the top and a hook inside for uniting the noseband, bit, and headstall. On each plate is rivetted a bracket with two arms, and in the bracket is fixed a pin serving as a fulcrum to a lever. One end of the lever forms a drum in which a spiral spring is wound round the pin; the other end is in the form of a hollow disc of size and shape corresponding to a horse's nostril: inside each disc is a small eye whereby it is joined to one end of a thin strap. A moveable ring on the strap connects it to

a rein which is held by the rider or driver; and by pulling it he brings down the levers, from their position on the noseband, over the nostrils. The extent to which the levers can shift their position depends on the distance at which the arms of the bracket are set apart.

[Printed, 8d. Drawing.]

A.D. 1860, August 8.—Nº 1912.

THORNTON, EDWIN MARTIN.—“An improved rein-holder.” This is a contrivance for holding driving or riding reins when not in use; it is attached to the dashboard, footboard, or other convenient part of a carriage, or to the front of a saddle. It consists of two arms moving on a pin, and a spring which causes the arms to act as a clip. The spring, pin, and lower part of the arms are enclosed in a cover.

[Printed, 6d. Drawing.]

A.D. 1860, September 1.—Nº 2112.

ALLEN, FREDERICK.—(*Provisional protection only.*)—“Improvements in a machine called a dumb jockey, used for the breaking and training of horses.” An upright bar of wrought iron is screwed or riveted on to an arch, the lower sides of which rest upon hinges joining it to two clams: the machine will thus fit a horse of any size. Upon the upright bar is a cross bar capable of being raised or lowered by means of a screw and countersunk holes: upon the cross bar are two springs which have “the action of a man’s hand upon the horse’s mouth.” The principle of the invention is “that the springs at the option of the breaker can be closed or separated, and also that the cross bar can be raised or lowered to any given point corresponding to that at which a man can place his hands.” The machine can be constructed of wood and iron combined, or entirely of iron.

[Printed, 4d. No Drawings.]

A.D. 1860, September 7.—Nº 2162.

STEVENS, CHARLES.—(*A communication from Antoine Bouet.*)—“An improved impermeable oil varnish,” which is applicable to leather of any kind or colour. Harness “can be washed and steeped in water with impunity a few minutes only after the

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" varnish is laid on." Many other advantages which it possesses are stated in the specification. The ingredients and proportions employed in the composition are, " 100 parts of alcohol, 100 parts " of spirits of turpentine, 1 part of sulphuric ether, and 1 part of " carbonate of soda." The varnish may be colored, but it is usually white and clear.

[Printed, 4d. No Drawings.]

A.D. 1860, September 8.—N° 2181.

KLEINFELDER, JOHN JOSEPH CONRAD, and GIRARDET, CHARLES.—(*Provisional protection only.*)—" Improvements in " carriages and harness for horses, and in the means of attaching " harness to carriages." This invention applies to single and to two-horse carriages, and to the harness used therewith. The shafts are of wrought-iron tubing, and the inner ends are provided with a centre pin, which enters an oval hole in the shaft sockets; on these ends are notches, which, when the shafts are lifted into a vertical position, fit into notches on the upper side of the sockets, thereby preventing the shafts from falling down. The tugs are metal loops, a portion of which is hinged for the admission of the shafts; the hinged part is secured by a " divided pin " which fits into a hole in the other part; " the other part of the pin is made " to enter a hole in the lower part of the tug." Straps are fastened at one end to the tug or saddle, and after passing through a ring are secured to the shafts, thus giving play to the crupper strap when backing or going down hill. " The traces for each " horse are joined together at the hinder end, and passed round " antifriction rollers carried by the splinter bar;" this by preference is made hollow to receive the hinder part of the traces, which, when inserted, are secured by a hinged cover. For lengthening or shortening the traces, they are pierced with holes for studs; these are notched " to receive the edge of a rotating button " mounted on a sliding metal clip."

[Printed, 4d. No Drawings.]

A.D. 1860, September 15.—N° 2249.

BARNWELL, STEPHEN, and ROLLASON, ALEXANDER.— " Improvements in combining and mixing certain solutions of " pyroxylene with animal, mineral, and vegetable substances, by " which its quality is altered in such manner as to produce hard,

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“resistant, adhesive, plastic, or resilient compounds and articles “unalterable in their nature, and varied in colour, which said “compounds in a state of solution may also be advantageously “employed as paints or varnish.” The patentees state in their Specification that straps, belts, and harness, can be made from a combination of pyroxylene with other substances, and that leather can be coated or varnished with a solution thereof. They detail their economic method of manufacturing pyroxylene by using common rags of any description in place of cotton wool; also the different ingredients combined therewith, oils, gums, ivory and bone dust, vegetable or mineral pigments, ether, alcohol, anhydrous basic salts, mineral substances, and animal matters (the proportions varying according to the nature of the article to be produced); and the articles made therefrom or coated therewith “far “too numerous to be particularly classified.”

[Printed, 6d. No Drawings.]

A.D. 1860, October 29.—N^o 2637.

BROUGH, NEHEMIAH, and KILBY, GEORGE THOMAS.—“New “or improved fastenings for articles of dress, and for fastening “belts and bands generally.” The fastening for braces, belts, and garters, is constructed in two parts, by preference of sheet metal. One part consists of a hollow elliptical piece, folded at about the middle, so as to form a tongue, and having a loop to which the lower portion of the brace is fastened; the other, of a plate from which two semi-elliptical pieces are cut, leaving a bar between them. The upper portion of the brace, &c., passes under each outer edge and over the bar: the tongue passes round the bar. In a modification for waistbands, belts, and garters, one part is broader than the other, and is formed with ears bent over a portion of the broad part; the other part, which is flat and has “an “expanded end,” is attached by causing the end to bear against the ears. For securing the ends of traces, &c. and mill bands (and sometimes braces,) the fastening consists of a metallic sliding frame, in which a flap works carrying a pin; in the frame is a hole which the pin enters. One part of the trace, &c., is secured to the flap; the other, which passes through the frame, is perforated with holes for the entrance of the pin. For increase of strength, “the “opening in which the flap works is made through the centre of

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" the frame, the metal of the said frame being on either side of
" the opening."

[Printed, 10d. Drawings.]

A.D. 1860, October 31.—N^o 2661.

GHISLIN, THOMAS COULTRON.—(*Provisional protection only.*)—
" Preparing, applying, and adapting certain articles of vegetable
" production called elkonia bucelinallis, proteaceæ, Juncus serratus,
" Juncus trista, and amaryllidæ, to further new purposes of
" manufacture." The plant first named can be substituted for
shagreen, dogskin (fish), horn, whalebone and other bones; it can
be manufactured into handles and sheaths of every description; and
it serves for covering whip sockets and handles and a variety of ar-
ticles. The Juncus trista can be used for basket work, flower stands,
&c., and where wire, reeds, straw, &c., are generally employed; for
matting, street, stable, and other brooms and brushes; for imitat-
ing hair and bristles; and for other purposes. The "prote fibre"
can be applied to making flock hanging paper. The fibre of the
amaryllidæ and the Juncus serratus, separate or mixed with other
fibres, serves to insulate electric wires, and to coat electric, sub-
marine, and other cables. In conjunction with these fibres is
applied "a solution composed of soap, marine glue, Trinidad
pitch, Egyptian asphalt, and Judean gum."

[Printed, 6d. No Drawings.]

A.D. 1860, November 6.—N^o 2717.

HEWITTE, WILLIAM.—"An improvement or improvements in
" whip holders or whip sockets." Four bow-shaped springs (or
other number) are fixed at top and bottom, by rivets or by stitching,
inside the whip socket; they are covered with soft leather or
other substance, and hold the whip handle firmly between them
without injury thereto.

[Printed, 6d. Drawings.]

A.D. 1860, November 21.—N^o 2857.

MYRING, CHARLES.—"Improvements in the manufacture of
" covered harness furniture, buckles, slides, and other similar
" articles, and in the machinery or other apparatus to be employed
" in such manufacture." This invention relates to the covering
of the articles specified by machinery, which the patentee describes

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in the process of covering a buckle. The leather is wetted, pasted, and drawn over the metal form; pressure in a die, whose counterpart is made with a mandril exactly fitting the inside of the buckle, closes the leather round the metal. The buckle is then partially dried and pressed in a die heated by steam; it is then thoroughly dried, dyed if necessary, and polished in a machine consisting of a lever working horizontally on a centre pin and having a stuffed leather pad on it: pressure in another die finishes the polishing and sets the edge firm and level. It is now stitched in a sewing machine; the fastening off of the silk or thread is performed; and it is placed in a press furnished with cutting dies, by which the paring off is completed: this last process may be effected by an improved paring tool, whose cutting edge is hollowed to somewhat the shape of the metal form, the buckle being slipped over a tapering mandril. The tongue is bent and curled round the bar in a fly press, in which the tongue fits into a groove cut in "the narrow beaked jaws of a pair of clamps." The sewing machine (Simpson's is the one preferred) requires alteration to render it fit for sewing the leather close round the metal form. The patentee applies "a stop under the foot of the sewing machine, " which stop guides the buckle up to the needle: " details of the alteration are given in the Specification. While the fastening off is going on, the buckle is held securely in "a pair of clamps " working by means of a foot lever; and opening by a spring "action between the jaws:" details of this apparatus also are given. The tools, &c. "require modifying to adapt them to the manufacture of slides, rings, and other similar articles of covered harness furniture."

[Printed, 1s. 4d. Drawings.]

A.D. 1860, November 22.—N° 2863.

LOVICK, WILLIAM FREDERICK.—(*Provisional protection only.*)
"An improved bridle bit, which I term a 'check snaffle bit, for " restraining vicious or hard-mouthed horses with greater facility " than with any other bit.' The bit is composed of two side bars and a mouthpiece like an ordinary snaffle, and with a joint in the middle: but there is a second mouthpiece below the first at a distance of two or three inches, and the rein rings are attached to the side bars "at points intermediate of the ends of the two mouth " bits."

[Printed, 4d. No Drawings.]

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A.D. 1860, December 26.—N° 3163.

DESBOROUGH, SPENDLOVNA, and MIDDLETON, SAMUEL.—"Improvements in the manufacture of boots and shoes, and in the means and apparatus employed for uniting and preparing surfaces of leather and similar materials for this and other purposes." The first part of this invention relates to improvements in apparatus for pressing and lasting the uppers of boots and shoes; the second to the means employed for uniting soles to uppers: details and drawings are given, as well as reference to Letters Patent granted to Samuel Middleton on February 25th, 1858, and August 31st, 1859. The third part describes an improved method of joining the edges of leather for the purpose of making tubular articles, such as scabbards, whip handles, sockets, &c. The edges are cut with dovetail projections, each of which is pierced edgewise for the reception of a flat strip of metal, wire, whalebone, or other flexible material. The ends are secured in any convenient way, and the joint is filled with any suitable compound. The leather is tanned with the hair on; the hair is laid down and coated with a solution of india-rubber, gutta percha, or the like. Tails of animals, tanned with the hair on, possess great firmness and rigidity.

[Printed in 2d. Drawings.]

1861.

A.D. 1861, January 3.—N° 13.

STRVENS, CHARLES.—(A communication from *Louis Marque*.)—"An improved apparatus for stopping runaway horses." It consists of a spring muzzle of steel, covered with leather, having an oval piece above the horse's nostrils, and opening by pulling a cord or band attached to a ring behind the muzzle; on the pommel of the saddle is a ring to which the cord is fastened. The muzzle is supported by a cross piece coming down the forehead and branching into two parts: the cross piece yields when the nostrils are seized and prevents the spring from being drawn too far back. A martingale is attached.

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to the girth and to the ring behind the muzzle. The stopping of carriage horses is rendered more effectual by fixing to the blinkers two straps crossing each other and passing on each side as far as the collar, where they unite and pass into the driver's hands.

[Printed, 4d. No Drawings.]

A.D. 1861, January 22.—N° 173.

HENDERSON, ROBERT.—“An improved ‘dumb jockey,’ for ‘breaking or training horses.’ It is composed of a metal frame, covered or not with leather, jointed at the sides, padded inside, furnished with girths and a crupper, and having an arch at its apex; a vertical bar is fixed on the top of the arch; and a transverse bar slides up and down the vertical bar and is kept at the required height by a set screw. On the transverse bar are mounted two slides, adjusted by set screws, and provided with springs and shackles to which the upper reins are attached. The crupper can be fastened to the transverse bar or to an independent slide.

[Printed, 6d. Drawing.]

A.D. 1861, February 23.—N° 458.

STEVENS, CHARLES.—(*A communication from Amedée Beaujouan.*)—“An improved elastic horse collar.” On an ordinary rod and straw pad is placed a collar of vulcanized india-rubber divided into separate compartments, each being furnished with a tube for admitting air. A small apparatus of wood, horn, or ivory is fitted to each tube to prevent the escape of the air, being hermetically fastened by means of ligatures: the tubes, when closed, are placed beneath the compartments for safety's sake. The india-rubber is enveloped in strong prepared cloth to prevent contact with the leather with which the whole is covered, and which is laced on the outer side. The number of compartments varies according to the wear to which the collar is likely to be subjected; and a second leather covering may be added to increase the strength. The air collar may be made in one piece, and be inflated from top or bottom.

[Printed, 6d. Drawing.]

A.D. 1861, February 28.—N° 517.

NEWTON, THOMAS.—(*Provisional protection only.*)—“Improvements in the accoutrements of horse soldiers’ and other

“saddles.” The first improvement consists in a mode of securing the holsters by means of plugs and sockets; for this purpose the stirrup bars are carried forward, and the sockets are fixed thereon. The holsters are coupled together by india-rubber rings, by a chain or other metal coupling, and by a leather strap which is threaded through loops or slits in them, and which also fastens the pannels by passing through slots formed for its reception. The second consists in securing the valise by a wooden or metal plug or plugs fitting into sockets in the saddle. The plugs of both holsters and valise are held safe in their sockets by a strap connected with the holsters, which passes under the saddle and is buckled to another strap fastened to the valise or its plug or plugs. The third consists in fitting the holsters and valise with separate flounces, which do not extend over the saddle seat. The fourth “in forming the ‘numnah and shabraque as one article.’”

[Printed, 4d. No Drawings.]

A.D. 1861, March 12.—Nº 605.

TOMLINSON, JAMES.—“An improved buckle plate or apparatus used for attaching and detaching horses when in harness, or for other purposes to which the same may be applicable.” It is composed of a buckle loop plate, a bolt plate, and a covering plate, all of metal. Round the edge of the loop plate project the loops of the buckles for the traces and other straps: the tongues are hinged to the outer part of the loops; their ends, pointing inwards, are sometimes flattened and have a hole in them through which a bolt enters. The bolt plate turns on a pin in the centre of the loop plate; it has as many bolts on its circumference as there are loops, and a projecting piece besides which terminates in a stud. The covering plate has portions of its edge cut out to receive the ends of the tongues, which rest on a spring secured to the loop plate and interposing between the covering and bolt plates. In the covering plate is a slot through which the shank of the stud passes: the stud end forms a spring bolt, catching upon a raised lip on the loop plate. To the stud a light rein is attached, which being pulled will draw the bolt partly round, thereby releasing the traces. “When the buckle plate is used as a draw plate to be attached to the shaft it is attached by a swivel or hinge or by a strap passing round a shaft and through a buckle loop. The bolts on the bolt plate are so arranged that

“ the back band may be attached before the other straps.” In double harness four buckle loops and bolts are required, the back band and belly band being fastened to the two opposite loops, and the traces or other straps to the other two. “ Where a pole “ is used, two pole strap loops are made to stand at right angles “ to the face of the buckle plate, the rein lying by the right side “ of the pole after passing through a small loop or over a “ pulley.”

[Printed, 6d. Drawing.]

A.D. 1861, April 24.—N° 1018.

LECOT, EMILE.—(*A communication from Rose Marie Victoire Celestine Carbonino.*)—(*Provisional protection only.*)—“ An im-“ proved nose-bag for horses.” The bag is made of striped sack ticking or other suitable material; the bottom consists of one or two nets of twine, “ to facilitate the sifting of the oats or other “ provender,” and “ to allow the saliva of the horse to flow away “ without soaking the food.” Two oval apertures, to allow of free respiration while feeding, are made near the middle of the bag, each “ about 7 inches long by 3½ inches wide;” they are furnished with netting similar to that forming the bottom.

[Printed, 4d. No Drawings.]

A.D. 1861, April 29.—N° 1073.

DESPLAS, JEAN BAPTISTE HUBERT.—(*Provisional protection only.*)—“ A so called hypocampaphile, or elastic apparatus whereby “ the legs of running horses are protected from accidents.” This knee-cap is made of india-rubber and gutta percha vulcanized and of different thicknesses “ according to the rubbing parts of the “ horse;” it is circular, and fits round the leg above and below the knee or fetlock, and is coloured to suit the colour of the horse. The upper ring is of triple thickness, the shield of quadruple, while the parts below the upper ring and above the lower ring (which is of double thickness) are of single thickness, to allow the free play of the muscles. The piece, which binds all these parts together, is of double strength. Modifications will be required in *making* protectors for the leg or fetlock.

[Printed, 4d. No Drawings.]

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A.D. 1861, April 29.—N^o 1075.

JOHNSON, WILLIAM.—"Improvements in saddletrees." The tree is of sheet metal, sheet steel being preferred; it is made by bending the metal out to the desired shape, "into a single splayed "bridge or arch;" it will generally consist of one piece; but in some constructions more than one piece will be required. The various parts and the mountings are raised or embossed in suitable dies or otherwise. The tree is to be covered with leather and padded and stuffed as heretofore.

[Printed, &c. No Drawings.]

A.D. 1861, May 2.—N^o 1102.

GLATARD, LAURENT.—"Improved means or apparatus for releasing horses from vehicles, and for locking the wheels thereof in prevention of accident." The contrivance for releasing horses is as follows:—On each side of the collar is a projecting piece in which a rod slides; the rod is pressed downwards by a helical spring, bearing against the projecting piece and a shoulder on the rod; the shoulder carries a pin which slides freely in the lugs. The front end of the trace is attached to a fastening plate, which has two holes through it, one for the trace end, the other for the pin to pass through. The upper end of the rod is joined to a chain; and the chains are united by a ring, from which a rein passes to the driver. Or there may be a metal box screwed on to the top of the collar. The chains pass over pulleys carried by the collar frame, and are fastened inside the box to a metal band extending outside the box and fitted with a ring for the safety rein. The locking apparatus is enclosed in the driving box; it consists of a shaft, carrying an eccentric drum and ratchet on one side and a lever on the other, and a chain winding round the drum and attached to a bent lever, at the lower end of which is a break-block. To the free end of the first lever is fastened a strap passing up through the box and terminating in a ring. The pawl falls by its own weight into each notch of the ratchet, keeping the hind wheel locked; to raise it, the driver bears on a lever at the end of which is a rod fastened to the pawl. When the bent lever is no longer pulled by the chain, a helical spring thrusts it back, thereby causing the block to move from the tire of the wheel. A slight modification, described in the Specification, is required when the box is not high enough to contain the apparatus. The two year

of the vehicle is kept straight by the driver pressing his foot on the head of a pin, which is held up by a helical spring, and slides in a socket fixed under the foot board, and enters another socket "fixed to the fore train." The patentee details also "a special way of harnessing horses without traces;" a method "more solid than stitching" of fitting the bands which support the breeching; and an apparatus for stopping the horse, if it "continues to run on" after being released.

[Printed, 10d. Drawing.]

A.D. 1861, May 8.—N° 1157.

PICKETT, JOSEPH.—(*Provisional protection only.*)—"Improvements in covering or partially covering the sticks and handles of whips and parasols, as also various other articles with flock, and producing ornamental effects thereon." A piece of cane or wood or other substance, prepared to the desired form, is coated with a strong adhesive varnish: when the varnish is somewhat set, the article is dusted over with flock, "such as is used for ornamenting paper-hangings." To produce different colours, portions only at a time are varnished and dusted. Indented patterns may be formed by pressure from dies or rollers. The braiding or plaiting machine may be employed in union with the above. The flocked article may be sized and then varnished so as nearly to resemble leather. The patentee ornaments bonnet and cap shapes by sizing and coating them with varnish and afterwards dusting them with flock.

[Printed, 4d. No Drawings.]

A.D. 1861, May 11.—N° 1203.

SWINDELLS, HUMPHREY.—(*Provisional protection only.*)—"Improvements in collars for horses." To prevent the rain which falls upon the collar from wetting the horse, the rib at the edge of the housing is continued "so as to conduct the rain to a part where it will fall free of the horse:" the collar is otherwise moulded to form gutters for the same purpose. The sides and back of the housing are made in one piece: the straps for connection with the harness are fastened to the inside of the collar; and the stuffed part is attached to the inside of the collar, or part connected thereto, instead of to the facing.

[Printed, 4d. No Drawings.]

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A.D. 1861, June 7.—N° 1451.

COLE, RICHARD LOCKINGTON.—(*Provisional protection only.*)—“An improved manufacture of glove for currying horses and other cattle.” The glove is made from a fabric having a cocoanut fibre pile: the fibre is woven into a foundation composed of strong strands of hemp, interlaced by woft threads which secure the tufts of the fibre in position. The fabric is made up into a glove large enough to hold the hand and four fingers; it is lined with cotton, which is continued beyond one edge to form a thumb piece. The back and front are alike, so that it can be used on either hand.

[Printed, 4d. No Drawings.]

A.D. 1861, June 25.—N° 1624.

STEVENS, CHARLES.—(*A communication from Louis Marque.*)—“An improved noseband for stopping runaway horses;” also a method of closing the blinkers. The noseband, for either riding or driving, consists of an open steel spring, covered with leather and furnished with an oval piece at each end for pressing the nostrils; it is supported in front by a branched strap, which yields when the spring is used, but prevents it from going too far back; it has a ring behind to which the safety rein and martingale are connected. Driving reins are made hollow, and the safety rein enters the right rein at the collar and is enclosed therein until it reaches the driver’s hand. The blinkers for drawing over the eyes are concave; a strap, fastened to each, crosses over the forehead: the straps unite at the collar into one rein, which, as before mentioned, extends to the driver.

[Printed, 10d. Drawing.]

A.D. 1861, June 29.—N° 1660.

EAGLE, ROBERT NELSON.—(*Provisional protection only.*)—“Improvements in riding stirrups.” The stirrup is suspended so as to incline the tread or bottom inwards, and upwards towards the body of the horse, when pressed upon by the rider’s foot. The point of suspension is made “inside a line perpendicular to the centre of the tread;” this is gained “by means of an adjusting screw or other mode of fixing the loop for the strap on the

“ pin or axis for connecting the lower part of the loop with the “ upper part of the stirrup.” The stirrup is suspended from an eye forming such an angle with its body “ as will obviate the “ tendency to twist the strap, and give a ready entrance to the “ foot when the toe is directed towards the shoulder of the horse.”

[Printed, 4d. No Drawings.]

A.D. 1861, August 31.—N^o 2177.

JONES, JOHN.—“ Improvements in clasps or fastenings for “ garments, belts, harness, and like articles.” This clasp is composed of two wedge-shaped parts; the larger is a flat plate with the sides turned up and bent over, the broad top flat, and the small end bent over or not; the smaller part is flat except that it has a “ concave corrugation ” on its front. The union is effected by sliding the one part into the other; each is provided with holes or eyelets for sewing it to any article, the corrugation preventing the contact of the threads.

[Printed, 6d. Drawing.]

A.D. 1861, September 7.—N^o 2244.

BIRKBECK, GEORGE HENRY.—(*A communication from Louis Friese.*)—“ Improvements in the construction of saddles,” rendering them elastic and pliable, and capable of fitting the shape of any horse. The pommel and crupper are of metal and jointed to the side pieces at the front and back in a moveable and elastic manner by means of metal bands or plates. The side pieces are in three parts, connected by pins, pivots, or other form of universal joint: each side is thus furnished “ with four distinct and inde- “ pendent movements.” The girths are fixed to “ upper coverings “ of leather,” and the arrangement is such as to prevent the buckles from rubbing against the horse’s sides, “ suitable padding “ being interposed for this purpose between the girths and the “ skin of the animal.” The leathers upon the sides are double-lined with felt on their under surface to keep the perspiration off the leather. In ladies’ saddles the horns and pommel are made in one piece of metal and jointed to the front one of the three side pieces in the same manner as the before-mentioned pommel.

[Printed, 8d. Drawing.]

A.D. 1861, October 4.—N^o 2482.

GUINSLIN, Thomas Gouliston.—"Improvements in the treatment or preparation of certain foreign plants or vegetable substances, and in the application of the same to various useful purposes for which horn, shell, whalebone, indurated leather, fishskin, ivory, bone, hard wood, and compounds of indiarubber or gutta percha have hitherto been employed." The plants are the "Ecklonia buccinaria, Laminaria buccinaria, Duvilllea utilis, Sarcophyllum potatorum, and their allies." The uses to which they are applied are various; among them are handles for whips, umbrellas, &c. Several processes are described for preparing the raw material; after removing "all extraneous matters" it is immersed in a hot lye of caustic lime for about three hours; steeped in a bath of diluted sulphuric acid; placed in a solution of common soda; and washed in pure water; it is then removed to the drying room, and when half dry it is shaped into any form desired. Or it may be steeped in a solution of American potash, then in dilute nitric acid, and afterwards in spirits of naphtha. Or it may be steeped for about three hours in hot water or water rendered slightly alkaline, and then be stamped, embossed, &c.; when removed from the press, it is hardened by steeping it for about an hour in a hot solution of nitrate of lead or of common alum, or in sulphate of alumina. Other processes are given. The waste pieces are utilized by reducing them to a gelatinous mass and using them "for plastic purposes." The coloring matter may be extracted and an appearance of ivory given "by submitting it to the action first of a warm solution of soda, second of sulphurous acid, third of chloride of lime, and fourth (if required) of chlorine dissolved in water or in the form of gas." When bleached, other dyes may be applied, and the method of producing colours is explained. "No general rule" can be given for "the strength of the acid solutions and other chemical agents."

[Printed, &c. No Drawings.]

A.D. 1861, October 10.—N^o 2530.

ENGLISH, AURAHAM.—"Improvements in reins or apparatus for preventing harnessed horses from falling." The rein begins with a loop at the saddle and tug bands (which it encircles) under the horse's belly, passes thence between the fore legs, and over

the chest, where it branches into two parts. Each part ascends through rings in the lower and upper portions of the harness, continues thence through the territs, between the bars of the dash board, through the driving seat, and is buckled to a strap fixed to the flooring of the vehicle. This strap may be fastened by a chain to the axle, or it may pass under the axle and thence to the back. A hand strap is attached to the rein, so that the driver may increase the tension at the time of accident. In four-wheeled vehicles, the strap may terminate at the driving seat and be doubled round a roller, each end being fastened to the safety rein.

[Printed, 6d. Drawing.]

A.D. 1861, October 16.—N° 2575.

ADAMS, JOHN JAY.—“A new and useful improvement in the “manufacture of flexible back brushes for cleaning and dusting “horses and other animals.” The body of the brush is constructed of one or more pieces of leather or other suitable material united by cement. The proper number of rows of holes are punched out: one end of a wire is fastened to the top of the body; the loose end is passed in a doubled state, so as to form a loop, down one hole; a bunch of bristles is placed in the loop; the loose end is drawn upwards, forcing the bristles by the middle into the hole; and so on, until all the rows except the outside one are filled. The hand or cap plate is now cemented to the body; holes are made through both; and the outside row of bristles is inserted in the manner before stated. By this process the outer row and the leather portion are secured at one time, thus dispensing with the line of sewing required by the old method. The band, through which the hand passes, is attached in the ordinary way.

[Printed, 6d. Drawing.]

A.D. 1861, November 16.—N° 2889.

NAISH, WILLIAM.—(*Provisional protection only.*)—“Improvements in the manufacture of saddle cloths, known as num-“nahs.” The saddle cloth is cut of the desired shape from a sheet of felt or felted cloth and covered with any suitable woollen cloth, “thus rendering great comfort and ease to both the horse “and rider.”

[Printed, 4d. No Drawings.]

A.D. 1861, November 18.—N^o 2891.

HAWKINS, JOHN.—" Certain improvements in bits for riding and driving." In each cheek is a slot into which an end of the mouthpiece is inserted ; the outer ends of the mouthpiece are enlarged to prevent it from separating from the cheek, but so as to allow it to revolve and slide in the slots. When double mouthpieces are employed, the one is made a fixture, the other as above. The same effect may be obtained by encircling the cheeks with eyes which can slide up and down the portion between the ends of the rein eye ; these eyes are formed with pins for entering the ends of the mouthpiece. Or the ends of the pins may be tapped and screwed together, and have a tubular mouthpiece revolve round them.

[Printed, *etc.* Drawing.]

A.D. 1861, December 4.—N^o 3035. (**)

HEIDGE, WILLIAM EDWARD.—(*A communication from Félix Laignan and Victor Cress.*)—" The present invention relates to the manufacture of canvas or other description of tissue suitable for the manufacture therefrom of horses' nose bags or other similar articles presenting one or more open-worked or trellis parts obtained by the insertion in the tissue by and during the weaving of the same of a suitable number of strings, twine, or other thread of a much coarser description than those of the remainder back or ground of the tissue, the said strings, twine, or coarse threads forming by their mutual interweaving a coarse open-worked part or trellis."

[Printed, *etc.* Drawing.]

A.D. 1861, December 19.—N^o 3113.

LIGHTFOOT, WILLIAM.—" An improved bridle." The bit is made with double cheek pieces on each side, joined " swivel-wise " to the ends of the mouthpiece ; the cheek straps are fastened to one pair, on the top of the other pair (called the cheek irons) are rings and hooks. Into one hook is slipped a curb chain, which passes under the jaw, through a metallic loop on one cheek strap, over the nose, through a similar loop on the opposite cheek strap, and on to the other hook. By this arrangement, which is applicable to both riding and driving bridles, pressure can be exerted at

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once on the nose and lower jaw. A strap or plate may be substituted for that part of the chain which passes over the nose.

[Printed, 6d. Drawing.]

A.D. 1861, December 31.—N^o 3274.

HUGHES, EDWARD THOMAS.—(*A communication from John Bloodgood Peck, and Thomas Bloodgood Peck.*)—“Improvements in ‘saddles.’ This invention consists in adding ‘a stop,’ placed in an angular position, to each side of the saddle, ‘in such a manner as to gather over the legs of the rider and aid him in keeping down upon his seat.’ The stop is cushioned and fastened to the saddle frame by metal straps.

[Printed, 8d. Drawings.]

1862.

A.D. 1862, January 14.—N^o 101.

CARTER, JOHN.—(*Provisional protection only.*)—“An improved ‘shaft tug or bearer used in harness.’ The tug, of iron or other metal covered with leather, is divided and jointed with a knuckle hinge; it is fastened by a spring latch, ‘which catches into a brass catch placed close to the buckle, by which the tug is attached to the back band;’ it has a metal loop through which the back band passes, thereby doing away with the necessity of winding the back band round the shaft.

[Printed 4d. No Drawings.]

A.D. 1862, January 31.—N^o 253.

LITTLEHALES, DAVID.—“An improved plastic compound as a ‘substitute for papier maché.’ The compound is made from ‘oatmeal, flour, pea, bran, rye, barley, or linseed meal, or other farinaceous or oleaginous meal,’ mixed ‘with tar or other varnish until it becomes of a thick pasty consistence;’ it is then moulded in dies, or formed into sheets, and dried in a japanner’s stove. When perfectly dry and hard, it is saturated with linseed or any other suitable oil, and afterwards finished with varnish or colours. This compound can be made into whip handles and a great variety of articles useful and ornamental.

[Printed, 4d. No Drawings.]

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A.D. 1862, February 8.—Nº 337.

CARRINGTON, JAMES.—"Improvements in the construction" and fitting up of stalls and horse boxes." The patentee claims the invention of stalls which can be readily removed, and which prevent horses from crib biting; of facilities for flushing the drains; and of an efficient means for accustoming young horses to the bit. Grooved sills of cast iron run along the floor, one end fitting into metal sockets let into the wall, the other end being screwed to hollow cast iron posts let into the floor. The ramps are of iron, the lower part having longitudinal grooves in the under side, and fitted, as the sills, into the wall and posts. Wrought iron panels are slipped into the grooves, and wooden panels are inserted between the iron ones. The manger, of cast iron, is attached to ribs secured to the metal panels; it contains corn trough, water trough on the left, and hay box on the right. The water trough is furnished with a service of hot and cold water, so arranged that water can be let into either the trough or the drain. All the parts being of iron, the habit of crib biting is avoided. In the sides of two adjacent posts are horizontal slots at about the level of a horse's mouth: bands of webbing, having their outer ends attached to a bit, pass through the slots and are fastened to vertical rollers within the posts. Equal tension is put on the bands by gearing the rollers to barrels, round which are wound "pendent weighted cords." There is a small door at the bottom of each post for access to the weights; and a partition may be run up to prevent the weights of adjacent arrangements from coming into collision.

[Printed, 10d. Drawing.]

A.D. 1862, February 13.—Nº 3380.

HEWITT, WILLIAM.—"Improvements in rein-holders." The body of the holder consists of a strip of steel or other elastic material doubled so as to enable it to clip the dashboard; or it may be a plate screwed to the dashboard, or sewn on if the dashboard be of leather. A spring tongue is fixed at one end to one of the sides of the body, projecting about three inches: a block, running along the middle of the tongue, bears against the dashboard, between which and the block the reins are held. Or the tongue may be so shaped and fixed that it holds the reins between itself and the body. The holder is either covered with leather, or

japanned, or otherwise ornamented. In low priced holders the block is omitted.

[Printed, 8d. Drawing.]

A.D. 1862, February 21.—N° 461.

WARD, HENRY.—“An improvement or improvements in ladies’ ‘saddles.’” By this invention the leaping or third crutch is made moveable without detaching it from the saddle. A dove-tail plate, in which a dove-tail slide works, is screwed to the tree in a horizontal or nearly horizontal position: the crutch screws on the collar of the slide. There is a series of holes in the bottom of the plate, in one of which a pin on the lower end of the screwed end of the crutch engages and fixes the crutch; by this contrivance the crutch can be moved along the groove to the required position. Or the crutch may be adjusted and secured by a rack and spring; that is, the fixed plate may have transverse teeth on its surface, and the crutch slide may have on its under surface a spring which engages with the rack: the spring may be raised by a knob or thumb plate. Or the crutch may be moved by turning a screw which engages with a concave screw in the dove-tail of the fixed plate. The rotation is effected by a bevel toothed wheel on the upper end of the screw; this wheel gears with another on one end of a horizontal shaft passing across the saddle and terminating in a handle. Or the crutch may be fixed on one end of an axis crossing the saddle horizontally and working in bearings in a metal cross piece screwed to the tree. On the farther end of the cross piece is an arm through which a screw passes: each end of the cross piece terminates with a plate having a series of holes (for the adjustment), so that the crutch may be placed on either side of the saddle. The crutch may be provided with a joint, so that, when not in use, it may lie nearly flat on the saddle.

[Printed, 1s. Drawings.]

A.D. 1862, February 21.—N° 466.

KRASUSKI, JOSEPH.—(*Provisional protection only.*)—“An ‘improved apparatus for controlling fiery horses.’” A small hand winch is placed near the driving seat, or under the saddle; round the winch is wound a chain, cord, or strap which is fastened to the fore or hind legs of the horse above the hocks. For *double harness* a single and adjoining leg only of each horse is

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coupled by a strap connected to the winch. The strap may be attached to the bit : the leg fastenings may be joined by a strap, passing over the neck of the horse instead of being actuated by a winch.

[Printed, 4*d.* No Drawings.]

A.D. 1862, March 3.—N^o 573.

RÉMOND, PIERRE. — "Improvements in double-rein bridle "bits." The separate snaffle and curb bits hitherto used are replaced by a single cylindrical bar fitted with a tongue guide and a pair of mouth rollers. The branches are curved to an S form "with turned down chamfers :" in the upper part of the branches are mortises, through which are passed the free ends of the cheek straps : below the mortises are holes for the rings of the curb ; and lower down are square apertures for the ends of the bar. The rings for the snaffle reins pass through pierced ears secured by flat headed screws, which also tighten up the square ends of the bar. At the lower extremities are holes for the ends of a curved barrel (fixed by nuts), and pierced bosses for the rings of the curb reins. The bar is cylindrical, hollowed out in the middle ; on each side of the hollow is a roller : fixed to the hollowed part is a small palate, the top of which is cut so as to form two branches ; between these is set an olive-shaped iron roller revolving on a screw. By this arrangement the bit may be readily taken to pieces, and the bar with its appendages and the barrel may be replaced by others suited to the size and conformation of the horse's mouth. For the double straps is substituted a single cheek band on each side, the upper extremities being lodged in a sheath, and the length being adjusted by a strap, stitched over the sheath, pierced with holes at each end, and buckled to the cheek band. The fillet is formed of a single band which slides through a scutcheon on each side of the headstall, and being continued forms a throat lash. A leather strap is used instead of a curb chain.

[Printed, 8*d.* Drawing.]

A.D. 1862, March 7.—N^o 607.

SHIPLEY, JOHN GEORGE. — "Improvements in bridle heads, "reins, and bits." The patentee substitutes studs and holes or slots for buckles and sewing in bridle heads and reins. In bits the cheek pieces are made in two parts, the lower screwing into

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the upper. The portion on which the bar fits is square, to prevent any turning in the mouth; or it may be round and allow the bar to rise and fall. The rings for the snaffle reins are either attached to the ends of the bar, or so shaped as to be inserted between the screwed parts. Or the bar may have a screw-hole at each end for the admission of a screw on each cheek piece. Or the upper part of the cheek pieces may be formed in two portions hinged together, and the bar, with either square or round ends, be secured between them. By the above arrangements bars of different size or shape may be used with the same cheek pieces.

[Printed, 10d. Drawing.]

A.D. 1862, March 18.—N° 745. (* *)

MENNONS, MARC ANTOINE FRANÇOIS.—(*A communication from Augustin Durand.*)—“A new or improved means of arresting “headstrong or run-away horses.”

This invention consists “in the utilization of the shocks produced by certain descriptions of magneto-electric and electro-magnetic apparatus, as a means of checking the course of headstrong or run-away horses. To this end a pair of flexible conductors formed of single or tressed copper or silver wire are inserted in the reins of the bridle, the forward extremities being each connected with a piece of moistened sponge so attached to the musrol or cheek bands as to press, when in position, against each side of the horse’s head, at a short distance below the eye. The opposite extremities of these conductors, prolonged beyond the grasp of the reins, are fitted with rings or other suitable metallic attachment, so arranged as to be readily connected with the poles of an induction coil set within reach of the rider or driver, as the case may be.”

“A modification of the arrangement known as ‘Breton’s electro-“medical coil’ having its rotatory mechanism so condensed as to admit of insertion in an ordinary saddle frame, has been found to answer every purpose.”

“When the horse refuses to obey the rein, or otherwise shews an inclination to run away, it is simply necessary to set the coil in action by one or two revolutions of the hand bar,” “so as to pass a succession of feeble shocks through the portion of the head comprised between the sponges.” “The effect of this application is to subdue the animal almost instantaneously, and

" to bring it to a stand still within a few seconds, even when
" running at full speed."

[Printed, 8d. Drawing.]

A.D. 1862, March 22.—N° 794.

MARSH, THOMAS.—"An improvement or improvements in
" hames for horses and other draught animals." The axis of the
staple, on which the draught plate works, is of twice or thrice the
ordinary length; on it is a series of circular grooves, equidistant
or nearly so. Through one side of the collar of the draught
plate a pin or screw is passed; and the pressure of the plate is
adjusted to the horse's shoulder by sliding the collar on the axis
and driving the pin or screw home, whereby it engages in the
groove opposite to it. Or the pin may be pressed home by the
free end of a spring fixed to the draught plate. Or the pin may
be fixed in the draught plate, and the axis may have a longi-
tudinal groove in addition to the circular ones, so that the collar
may slide up and down, and be secured, when adjusted, by turn-
ing the pin into its opposite groove.

[Printed, 8d. Drawing.]

A.D. 1862, March 31.—N° 894.

LORD, WILLIAM BARRY, and GILBART, FREDERIC HUGHES.
—"An improved hame-slip for suddenly releasing horses and
" other cattle from their harness; also applicable for releasing
" heavy bodies or weights." This apparatus is hooked on to the
hame ring; it consists of a piece of metal having two deep open
slots in the broad or circular portion thereof, thereby dividing this
portion into three cheeks. A hole is bored through the inner and
middle cheeks, and a keyhole shaped slot is cut in the outer one.
A pin passes freely through the holes; it has a groove along the
bottom into which a screw takes, acting as a stop when the pin
end is in the middle cheek. At the other end of the pin is a T
or other shaped piece hinged on, by which the pin is pulled out as
far as the stop, or pushed back into its place, and secured therein,
in conjunction with the slot. The trace end is perforated with a
hole a little larger in diameter than the pin, and is passed between
the inner and middle slots.

[Printed, 8d. Drawing.]

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A.D. 1862, April 2.—N° 928.

NEWTON, ALFRED VINCENT.—(*A communication from Aurelius Langdon Weymouth.*)—“ Improvements in bits for taming or “ subduing vicious horses and breaking colts.” The bit is composed of two bars connected centrally by a pivot; the outer parts are turned up at right angles to the inner and connected by chains to a strap which passes over the head. The lower half of one of the inner parts is furnished with a rack, and the part above it with a pawl actuated by springs, which are sufficiently strong not only to keep the pawl engaged with the rack teeth, but also to keep the bars distended when not restrained. This bit is placed in the mouth directly in front of the ordinary bit.

If this bit is to be used alone, a lever arrangement is substituted for the “ automatic expanding device just described :” two levers are applied on each side to the turned up portions; each pair is connected at their bend by a fulcrum pin, and at the front end of each to one of the said portions by a pivot and retained thereon by either a ring or slide. The front ends may be permanently fixed, and the levers may be formed each in two pieces united by a pin and slide. On the back part of the upper levers is a ring, by means of which a strap fastens them to the headstall, holding them in their proper position. The lower levers are curved downwards and terminate in a ring for a rein, which enables the rider to control his horse by expanding the bars and thereby distending the mouth. For ordinary riding a rein is attached to the bars so as to operate as a plain snaffle.

[Printed, 10d. Drawing.]

A.D. 1862, April 7.—N° 989.

CARRINGTON, JAMES.—(*Provisional protection only.*)—“ Im- “ provements in the form of bricks, and in the arrangement “ thereof for paving stables and stable yards.” The bricks are made with rounded top and edges, thereby producing a grooved surface when cemented together. As both the top and bottom edges are rounded, either side may be placed uppermost. The bricks are made of clay, clinker, slag, or any material that is capable of being moulded; they should be arranged diagonally, so that the groove by running in the same direction may be easily kept clean.

[Printed, 4d. No Drawings.]

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A.D. 1862, April 23.—N° 1176.

HOLDEN, LUKE.—(*Provisional protection only.*)—“ Certain improvements in harness for animals of draught and burden.” The first part of the invention consists in making tugs of metal covered, or not, with leather or other material; the second in joining the buckle to the tug by a pin, in order that the buckle may be readily renewed when required; the third in constructing harness saddles of metal, or covered metal.

[Printed, &c. Drawing.]

A.D. 1862, April 30.—N° 1277.

CARTER, JOHN MONEY.—“ Improvements in harness and the shafts of carriages.” In single horse carriages the shafts are made to serve as traces by hooking the ends to the draught eyes of the hames: the points of the hooks when inserted assume a horizontal position by means of a joint. The shafts are bent to the formation of the horse; they are rigid laterally, but bend vertically by means of a hinge, at about one-fourth of their length from the front; they are of iron and for the greater portion tubular and telescopic: the sliding parts, when adjusted, are secured by screws. The tugs are reduced in size; a portion of the shaft is slotted and hinged; this portion is raised, the tug is inserted, and a pin secures the whole, and at the same time strengthens the shaft. The shafts are prevented from rising by attaching the surcingle to the under part of each tug by means of a metal loop, and buckling the straps under the belly. To prevent the reins from twisting, a bar is placed nearly across the interior of the trestle, and the reins are passed through the upper and narrow portion. “ The flapping of the straps which support the traces in ordinary double harness is hindered by sinking in the cushion of the pad or saddle a sufficient space for the free action of the straps, “ the upper end of the straps having a bar across it, wider than “ the aperture to prevent its quitting the pad.”

[Printed, &c. Drawing.]

A.D. 1862, May 6.—N° 1351.

GREAVES, WILLIAM.—“ Improvements in safety stirrup bars.” This stirrup bar is composed of a semi-circular bracket piece or flap riveted to the saddle-tree; a spring lever bar over which the stirrup leather hangs; and a blade spring, acting on the lever bar,

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and contained inside a slot in the horizontal part of the bracket piece. The lever bar is jointed to the end of the horizontal part, and is formed with a curved tail piece which rises up at an obtuse angle. In order to keep the lever bar "snug in its place when 'closed down,'" its free end enters a vertical slot cut in the lower part of the bracket.

[Printed, 6d. Drawing.]

A.D. 1862, May 6.—N° 1353.

CLARK, WILLIAM.—(*A communication from Jean Louis André.*)—“An improved buckle or fastening” for uniting the ends of straps, belts, harness, but especially the ends of machine bands. It is “formed of a frame, in two parts of unequal length jointed “together, having several bridges or tie pieces.” One end of the strap is sewn or otherwise secured to a bridge of the smaller frame, the other end passing alternately over and under the several bridges of the other and longer frame. “A cross bar or rocking “piece is placed about midway of the larger part of the frame, “which, when tension is exerted on the strap, is caused to bear “on it its whole width, and so retain it in its desired position.” The strap passes through a leather loop “before being gripped “by the rocking piece.”

[Printed, 6d. Drawing.]

A.D. 1862, May 10.—N° 1403.

CLARK, WILLIAM.—(*A communication from Jean Louis Abeil-
hov.*)—“The application of a vegetable fibre alone or in combina-
“tion with other matters in the manufacture of felted and other
“fabrics, also a substitute for flock or powdered wool, and as a
“material for padding or stuffing, and for other useful purposes.”
The “vegetable fibre” mentioned is the down of “aquatic plants
“technically called ‘typha,’ and commonly known as reeds or
“bulrushes.” When the down is sufficiently dry, it is separated
from the seeds, worked until it possesses the fineness of silk,
mixed with one-third or half the quantity of hare’s or rabbit’s,
or it may be beaver’s hair, and felted. It may then be used for
all kinds of head dresses, “civil, ecclesiastic, and military.” It
may be employed in weaving by mixing it with silk, wool, cotton,
flax, or other fibre; and for several purposes when combined with
india-rubber or similar matter. Among the many articles enum-
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rated to which it may be applied are carriage fittings, saddlery, saddle cloths, covering for saddle bows, holsters, as a substitute for leather, and instead of wood for collars.

[Printed, 4d. No Drawings.]

A.D. 1862, May 30.—N° 1628.

LÉON, ISOPY.—(*Provisional protection only.*)—“An improved “ curb or rein for enabling riders or drivers to stop restive or run-“ away horses.” This invention consists of a rein with an under throat piece. It passes from the rider’s hand “into a martingal “ with rings placed on each side of the horse’s collar, then through “ two rings fixed on each side of the piston snaffle,” and rising under the throat passes into two rings carried by the headstall, For horses in harness the rein “is passed into two screw rings “ fixed to the seat, then through the rings of the snaffle, and “ rising so as to pass into the rings of the headstall, finally rests “ under the throat.” The driver has only to pull the rein “to “ produce a pressure under the horse’s throat sufficiently great to “ prevent if required the air from entering his lungs.”

[Printed, 4d. No Drawings.]

A.D. 1862, June 11.—N° 1735.

LENNAN, WILLIAM.—“An improved safety stirrup.” The foot rest extends to nearly the length of the foot and is secured to a cross bar which pivots in the lower extremities of the stirrup iron. A bar, corresponding nearly in shape with the arch of the stirrup iron, is hung freely at the centre thereof, forming a latch: two small projections on the lower ends of the latch prevent it from passing through the stirrup, but allow it “to swing freely in the “ opposite direction.” A fixed bar, parallel to the turning bar, acts as a support to the rest when in its horizontal position. By bearing upon the heel of the rest it will instantly turn up and throw out the foot; the toe of the rest will pass under the crown of the latch, which “turns up to admit of such passage,” and then “drops into its vertical position again against the back of “ the stirrup, so as to prevent the return of the rest until the “ stirrup is readjusted.”

[Printed, 8d. Drawing.]

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A.D. 1862, September 13.—N° 2526.

NEWTON, ALFRED VINCENT.—(*A communication from William Thornton.*)—“An improved mode of and apparatus for sleeking, “creasing, and raising leather,” applying chiefly to the treatment of harness straps. The machinery whereby these operations are performed is composed of the following parts:—a foundation; two vertical columns secured thereon by screw nuts; a cross bar surmounting the columns and perforated at one end for the reception of a hand screw; a carriage fitting and sliding up and down the columns; a vulcanized solid rubber spring and metal disc interposed between the perforated end of the cross bar and the ledge of the carriage; a stop projecting from the foundation and preventing the hand screw from pressing the carriage down too low; bearings on the back of the carriage for a shaft which carries upon one end a spur driving wheel and upon the other a metal finishing roller; bearings on the back of the foundation for a second shaft (parallel to the first), to one end of which is keyed a driving wheel gearing into the upper one, and to the other a wooden base roller; and a crank handle on an extension of the lower shaft. The upper roller is secured and prevented from revolving round its shaft by a pintle projecting from the shaft and into a slot in the eye of the roller, and by a screw nut at the end of the shaft; the base roller by a longitudinal projection on its shaft which takes into a groove in the body of the roller, and by the overlapping or interlocking collars of the upper roller. The rollers are made in pairs of “suitable configuration” and of different sizes, each pair to work strips of leather of two widths: the iron rollers are smaller in diameter than the wooden ones. A strip of leather introduced between a pair of rollers (the machine being set in motion) passes out sleeked, creased, and raised.

[Printed, 10d. Drawing.]

A.D. 1862, September 16.—N° 2539.

BUNTING, JOHN GOLDING.—(*Provisional protection only.*)—“A mechanical horse-break.” It consists of “a horizontal framing, “somewhat in the form of a pair of cart shafts, the hinder ex-“tremities of which are left open for the entrance of the horse; “these shafts are connected by means of an arched axle, the arch

" extending over and across the haunches of the horse, ordinary carriage or cart wheels being attached to the arms of the axle. " The fore parts of the shaft rest on a fore carriage and wheels, to which is attached a pole or shafts." The horse is harnessed within the frame and retained therein by bands, which pass over the back and under the belly and are fastened to each side of the frame. Hames and a collar strap are secured to the fore part of the frame, " whereby the horse is securely held in position and compelled to follow the leader or leaders." A dickey may be placed on either side of the axle.

[Printed, 4*d.* No Drawings.]

A.D. 1862, September 29.—N^o 2647.

ADDISON, JOHN.—" Improvements in moorings, or apparatus for securing articles, applicable also to the fixing of chairs for railway." This invention is " the discovery of creating a perfect vacuum, and consequently a perfect atmospheric pressure, by covering with water the plates herein described;" it consists " in the employment of plates of metal of sizes proportioned to the strain likely to be exerted on them." These plates are placed in holes dug for their reception and " prepared with a bottom of loose earth on which the plates rest;" sufficient water is poured in to cover the plates and " create a perfect atmospheric pressure;" earth is then thrown in and well beaten down. For picketing horses and cattle the patentee uses " 2 cast or wrought-iron plates 15 inches long, 11 broad, and $\frac{1}{4}$ -inch thick; each plate is formed with a pointed end," so " that it may be used to dig the pit or hole in which it is to be inserted," and the plates are connected by rods or chains to which the animals are secured; the hole " is not to be deeper than 15 inches." He also makes apparatus to which railway chairs may be fixed, another to which vessels may be moored, and which may be used " as substitutes for anchors for steam ploughs," another to assist troops in crossing fords, and another for supporting uprights for fencing and for facing earthworks. He states the length, breadth, and thickness of the plates, sockets, bars, &c., which he prefers in making his various apparatus, and the depth to which the plates are to be sunk.

[Printed, 6*d.* Drawing.]

A.D. 1862, September 29.—N° 2648.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Jules Christian Waltz.*)—“ Improvements in saddletrees and “ collars.” The sides of the tree are made of thin flat pieces of wood united at the front and back by curved pieces of wood ; and another piece is added to form the pommel. The whole of the lower surface of the tree is covered with damp leather, which is bulged out between the sides into an arched form. The tree is then placed in a stove or otherwise exposed to heat ; and to keep the leather in shape a curved support in two parts is wedged in between the sides : to increase the tension ‘ a large pin ’ is driven in at each end of the support. When the leather is partially dry, it is cut and trimmed and fastened to the sides ; the whole is bound with leather ; the drying is completed ; a metal bow is fixed on the head ; and stirrup loops, rings, &c. are put on in their proper places. In constructing a collar a piece of damped leather is shaped upon a wooden mould having a metal flange ; the leather is secured thereon by cords which pass through holes in the flange. When the leather is dry, the mould is removed, and the rigid form of the flange is retained by a metal or wooden bar applied on its outer, and a leather or wooden band on its inner surface ; “ and the flange is consolidated by cords passing through “ holes in the bar and the band.” The curve of the leather is maintained by a piece of wood fitted under the cheeks. Stuffing and padding are applied, and the whole is covered with leather.

[Printed, 8d. Drawing.]

A.D. 1862, October 6.—N° 2692.

PAGE, ROBERT.—“ Improvements in stables and stabling, “ applicable in part to kennels and to the floors of fish houses.” The floor for stable, kennel, or fish house, is made non-absorbent by covering it with Portland cement combined with sand, shingle, and finely powdered clinker. The patentee states the proportions which he prefers. The ground is previously prepared by laying bricks, or rubbish well rammed, in such a manner that there shall be a number of inclines to ensure the stalings, &c., being carried away to the cesspools, of which there are two, one for a horse, and one for a mare. When the cement is set, it is coated with boiled

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linseed or other oil. A thorough draught is made by placing ventilators at opposite points; the window is of perforated zinc. The rock is placed on a level with the horse's head and is supplied by means of a wide spout; the manger is enamelled. The horse lies on a mattress of India-rubber, gutta percha, or kempfthorn.

(Printed, &c. Drawing.)

A.D. 1862, October 16. -- N^o 2704.

BRUMFIELD, THOMAS AMASA. -- "An improved horse collar." The ordinary stuffing is replaced by two or more cushions of prepared India-rubber so constructed that the material be not disintegrated, nor the air, with which they are filled, in too compressed a state. The cushion is composed of 100 parts of Java India-rubber, 20 of flower of sulphur, 8 to 10 of white zinc, 5 of chloride of calcium, and 5 to 10 of black lead, the proportions varying according to the purity of the rubber. The whole is subjected to heat, mixed in the usual manner, and afterwards exposed to a temperature of from 50° to 60° Centigrade. The mould is of such shape that the side of the cushion to be placed on the straw crosses is flat, the part to be nearest the horse round. When air has been introduced, the air hole is carefully closed, and the mould with its contents is heated to from 140° to 200° Centigrade for about two hours. The cushions, when placed on the crosses, are covered with impermeable cloth or other substance to keep off the sweat, and the ordinary covering of leather is fixed on.

(Printed, &c. Drawing.)

A.D. 1862, October 26. -- N^o 2871.

LUKE, CHARLES, and LUKE, WILLIAM. -- "An improved stirrup." This invention, applicable to all kinds of stirrups, consists in fitting a moveable tongue or pin of iron, steel, or other metal, into or upon the upper or lower bar of the stirrup eye or loop, "so as to provide for the shortening, lengthening, or fastening the stirrup leather." By this arrangement the stirrup leather can be used single instead of double, and no buckle is required.

(Printed, &c. Drawing.)

A.D. 1862, November 26.—N° 3173.

AUSTIN, WILLIAM.—(*Provisional protection only.*)—“An im-
“ proved material for the manufacture of cartridge cases, appli-
“ cable also for tubing and various other useful purposes,”
amongst them for roofing for stables, for harness and saddlery.
The material consists of a woven fabric coated with any adhesive or
waterproof adhesive solution, covered with a layer of paper on one
or both sides, and then subjected to pressure, either by rolling, or by
flat or other pressure, hot or cold. Or a paper pulp, waterproofed
or not, may be spread on each side of the fabric, and subjected to
hot or cold pressure. Instead of a woven fabric fibres of various
descriptions may be intermixed with pulp or laid between sheets
of paper, and treated with waterproof solution. To produce a
thick substance several layers may be pressed together: in all cases
the exterior surface may be lacquered or varnished.

[Printed, 4d. No Drawings.]

A.D. 1862, December 30.—N° 3473.

BONNEVILLE, HENRI ADRIEN.—(*A communication from Laurent Cogent.*)—“Improvements in the manufacture of saddle-
“ dles,” by means of which the same saddle may be used for
horses of different size. The invention “may be applied to all
“ saddles whatever may be the mode of constructing the saddle-
“ tree.” Two iron stays are rivetted behind the front arch of the
saddle bow, one on each side; two moveable screw nuts are fixed
to the upper extremities of the stays; they are united by a steel
spindle, “each extremity of which is worked with a screw thread
“ in an inward direction.” The middle of the spindle is larger
than the rest, forming a shoulder, and bored with holes to permit
of its readily turning and thereby increasing or diminishing the
span of the saddle. In ladies’ and military saddles the apparatus
is partially hidden in the saddletree; in the former the screw nuts
are strengthened by supports, and the stays are jointed; in the
latter the screw nuts turn in iron bands which are fixed edgeways
on the front arch of the bow. The bow is of pine, cut “so that
“ the grain is lengthways of the saddle;” it is covered with raw

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hide and lined with walnut or other veneer "which is placed crosswise with the grain of the pine."

[Printed, 10*d.* Drawings.]

1863.

A.D. 1863, February 16.—N^o 419.

SMITH, HUGH.—(*Provisional protection only.*)—"Improvements in apparatus for feeding horses." This invention consists in applying a contrivance to mangers, or to the troughs from which horses are fed, in order that the food may be gradually supplied. The arrangement may be varied; but it is preferred to have a shoot to each manger or trough, descending from a hopper or other containing vessel, wherein the quantity of food for a feed is placed, and from which it is allowed to descend, the speed being regulated by a valve or slide, or other instrument, which is actuated by a weight or spring or other means.

[Printed, 4*d.* No Drawings.]

A.D. 1863, February 20.—N^o 462.

BILLINGSLEY, CHARLES.—"Improvements in saddlery, harness, driving straps, and similar articles." By this invention the ordinary buckle is replaced by an instrument, composed of a clip of leather, metal, or other material; a metal plate having one or more fixed or moveable studs projecting from it; and a fixed or loose loop. The clip and plate are riveted or otherwise fastened to one end of a strap; holes are punched in the end of the strap to be joined; this end is thrust through the clip, the stud passes through the proper hole, and the extremity is confined by the loop. The stirrup leather is single; one end has a loop through which the spring bar passes; the other end, provided with holes and the above-described instrument, is slipped through the stirrup eye and fastened as before.

[Printed, 8*d.* Drawing.]

A.D. 1863, February 24.—N^o 499.

CLAY, JOHN.—"Improvements in the manufacture of saddles," in the parts called the knee pads, the thigh pads, and the cantle

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rolls, and in the upper leathers generally. The leather, in one or more pieces (one being preferred), is wetted and placed between a pair of moulds, having internally the figure, embossed ornamentation, &c., which it is wished to give to the upper leather. The leather is allowed to dry in the moulds; it is then removed, and the hollow portions are filled with stuffing, which operation is performed by preference in a suitably shaped stuffing mould. The upper leather is secured to the shell or under flap and skirt in the usual manner.

[Printed, 8d. Drawing.]

A.D. 1863, March 13.—N° 687.

JOHNSON, JOHN HENRY.—(*A communication from Victor Gueldry.*)—“Improvements in fastenings suitable for portions of “harness and other purposes,” and particularly applicable to hames. One of the branches is bored with two holes at right angles to each other and partially intersecting. Into the lower hole is fitted a bolt, having a transverse notch cut in it where it crosses the upper hole: the bolt is screwed at the back to a nut, and connected to a ring or swivel (for the attachment of the martingal) in front—it may be by a bead countersunk into the eye of the ring. On the other branch is a spindle, accurately fitting the upper hole, and having a corresponding transverse notch on its under side. By turning the bolt until its notch is in the line of the upper hole, by inserting the spindle, and by bringing the ring down into a vertical position, an effective lock takes place.

[Printed, 8d. Drawing.]

A.D. 1863, March 18.—N° 730.

NORRINGTON, FREDERICK.—“Improvements in girths or “bands and knee caps for horses.” The girth is a strip of vulcanized rubber or rubber webbing; each end is turned back to form a loop; the portion turned back is joined to the strip by vulcanizing, and for strength a lining may be added. Through each loop passes one bar of a buckle, the other bar carrying three or other number of small buckles for the saddle straps. The buckle bar can be applied before or after the vulcanizing, according to its make; or two or more separate buckles may be fastened on at each end. The bands or rollers are of vulcanized rubber with a

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loop three or four inches from each end; one loop admits a buckle, the other a buckle bar (both similar to the above) to the outer bar of which leather straps are sewn. The knee caps are of vulcanised rubber, made in one piece with the straps, which may be strengthened with a lining. The middle of the cap is thicker than the other parts; at one side buckles are attached as before described.

(Printed, 16d. Drawing.)

A.D. 1863, April 4.—N^o 855.

MCNAUL, ALEXANDER.—(*Provisional protection only.*)—"Im-
"provements in saddle." The object of this invention is to
facilitate the removal of the pannel; it has near its outer edge at
suitable points metal sockets to receive thumb screws, which are
inserted from the upper side of the saddle through eye-plates fixed
into the tree. The screws are formed with slotted thumb heads,
and two of these, which are at the front part of the saddle, serve
to admit clock straps. At the crupper a metal staple is fixed
into the pannel, and a screw passes through an eye therein into a
socket in the back of the tree, which is by preference "shaped
squarely down." When a crupper strap is used, the crupper
screw is formed with a slotted thumb head; a separate staple may
however be fastened to the back of the saddle for the crupper
strap.

(Printed, 6d. No drawings.)

A.D. 1863, April 9.—N^o 804.

NEWTON, ALFRED VINCENT.—(*A communication from Jacques Eugene Armengaud.*)—"An improvement in stirrups, and in the
"mode of attaching the same to saddles." The stirrup is im-
proved by setting the eye for the reception of the leather at right
angles to the bow. It is attached to the saddle as follows: to the
saddle bow is screwed a metal band, covered with leather and
pierced with oval holes; one end of the stirrup leather is fastened
to a loop, at the top of which is an oval button fitting into the
holes; the other end to a loop terminating in a hook, which, after
passing through the stirrup eye, is brought up and dropped into
one of a series of holes in the upper part of the leather.

(Printed, 16d. Drawing.)

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A.D. 1863, May 7.—N° 1142.

STANLEY, ALVERD.—(*Provisional protection only.*)—“ Certain improvements in the mode of finishing clasps and other such like metallic connectors, and which said mode of finish is also applicable for other purposes.” The clasps are covered on one or both sides with leather “ moulded, pressed, or embossed to the shape or sectional design of the metal shell or part desired to be covered;” the leather is stitched round the edges to the metal portion; and ornaments may be added to the outer surface, secured in any convenient way. “ This mode of finishing clasps, and such like articles, may also be used with advantage in rosettes for head harness.” The form of the article is derived from the inner shell; or the covering, after being moulded, &c. into the desired shape, may have the hollow portion filled up with any plastic material capable of setting hard.

[Printed, 4d. No Drawings.]

A.D. 1863, May 16.—N° 1229.

BROWNE, BENJAMIN.—(*A communication from Gustave Mayer.*)—“ Improvements in the manufacture of elastic material.” A die or plate is formed with holes or indentations therein, so that the under side of the elastic material, in the act of being made into sheets, will have a series of points or projections thereon. When the material thus shaped is placed between two surfaces, a free current of air is admitted between them; the pressure on the saddle or collar is distributed, and chafing is avoided. This form of elastic material can be applied between the soles of boots and shoes, and in the manufacture of knapsacks and such like articles.

[Printed, 6d. Drawing.]

A.D. 1863, May 23.—N° 1298.

HOLY, WILLIAM.—(*Provisional protection only.*)—“ The preparation of a fluid for renewing the surface of japanned and enamelled leathers and cloths.” The ingredients and proportions are thus stated by the patentee:—“ I take, say, two ounces of paraffine, or it may be rock oil, or a mixture of both, in any proportion, to which I add one quarter of a drachm of oil of lavender, one quarter of a drachm of citronel essence, and half an ounce of spirit of ammonia.” When the ingredients are

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thoroughly mixed, the fluid is lightly applied on the surface of the leather or cloth : ivory or lampblack is sometimes added to colour the mixture in order to darken the parts which have been damaged. The mixture is applicable to harness, boots, &c.

[Printed, 4d. No Drawings.]

A.D. 1863, June 11.—N° 1452.

KAIN, JOHN FRANCIS.—(*Provisional protection only.*)—“Im-
“ provements in umbrellas, parasols, sunshades, walking sticks,
“ and whips, and in brooches and other ornaments.” The stick
or handle is made telescopic ; the lower portion is of wood, ivory,
or other material, “hollow to the required length,” and with the
inside surface smooth or lined with a smooth substance. The
upper or sliding portion is of cane or similar material ; “it is pre-
“ vented from sliding too far in by a suitable stop.” At the end
of the handle portion is a recess in which is placed “a perfumed
“ or perfuming agent in a pasty, solid, or semi-solid state.” The
recess is covered by a cap “formed with perforations or small
“ orifices.” This method “of applying and retaining perfume
“ may be applied to brooches and other ornaments for personal
“ wear.”

[Printed, 4d. No Drawings.]

A.D. 1863, July 2.—N° 1648.

LLOYD, EDWARD.—“An improved composition for waterproof-
“ ing, softening, and preserving all kinds of leather, and articles
“ made therefrom.” The ingredients and proportions are, “castor
“ oil, eight parts or pounds ; boiled linseed oil, one part or pound ;
“ beeswax, one part or pound ; fir balsam, one-eighth of a part or
“ pound ; tannic acid, one-sixteenth of a part or pound ; or in
“ such other proportions as may be suitable to the kind of leather
“ to which the composition has to be applied :” suitable coloring
matter may be added. The ingredients are to be melted and in-
corporated together : when the composition is to be used, it must
be heated until liquefied and applied while warm with a brush,
then rubbed into the pores with the hand and allowed to dry into
the leather for two or three days : the process must then be re-
peated, and the leather put aside until quite dry. The leather

may then be blacked and polished ; or if harness, the usual harness polish may be applied.

[Printed, 4d. No Drawings.]

A.D. 1863, July 9.—Nº 1705.

DAVIS, SAMUEL.—(*A communication from Henry Theodor Romertze.*)—(*Provisional protection only.*)—“An improved ‘anatomical’ bit for horses or other animals.” Each cheek is formed with a projecting arm, “shaped so as to conform to the ‘anatomical construction of the cheek bone of the horse.’” The lower ends of the cheeks are connected by a bar capable of springing when the cheeks are acted upon by the reins. To the inner side of each cheek is fixed one end of a round rod ; these rods form the mouthpiece ; the other end projects through a slot in each cheek and “is borne against the outer end of its slot by the ‘action of the spring bar.’” A rein ring is attached to the projecting end of each rod ; and by pulling both reins the projecting parts cause the cheeks to press simultaneously upon the cheek bones. The projecting parts are encased in a strap of leather or other substance which encircles the nose ; and “on each side of ‘this strap eyelet holes are formed, which are secured upon studs or other fastenings on the outer sides of the cheeks ;’ the rear ends surround the lower jaw and are buckled or otherwise joined together.

[Printed, 4d. No Drawings.]

A.D. 1863, July 14.—Nº 1756.

OPPERMANN, CARL.—(*Provisional protection only.*)—“Improvements in means or apparatus to facilitate the connecting and disconnecting horses and other animals with carriages.” When shafts are used, the traces are attached to hooks or studs, each of which turns on an axis and is retained in position “by a ‘spring lever and stop or stops ;’” another stud or stop prevents the trace from slipping off the hook or stud. When a pole is used, the chain or strap from each collar or breast-pad is passed over a stud or projection on the pole and secured there by a sliding plate or bar, which is kept in position by a screw, catch, or other suitable holder. Or hooks or studs on the pole may be made to

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turn "on an axis of motion," so as to release the ends of the chains or straps; the hooks or studs are held in position by a catch or stop. The patentee makes a connecting hook for the pole chains or other parts of harness as follows: "The hook is formed in two parts, or has two hooks bent in opposite directions, and connected by a common centre with the points of the two hooks, when the parts are closed, meeting and overlapping one the other. In this position they are held by a screw or sliding cap or other stop." Or it may be made "with one side or limb acting as a retaining limb to prevent the slipping off of the part retained, and which retaining limb is capable of turning on an axis carried by the other part of the hook or holder, and held in position by a spring. This loose limb has a prolongation which prevents its moving too far outwards."

(Printed, &c. No Drawings.)

A.D. 1863, July 16. - N° 1745.

STOKES, CHARLES.—"An improved expanding and contracting horse collar." There is a hinge at the top, and for a cart or heavy draught collar a notched bar at the lower end of one side, which takes into a stud fixed on a corresponding part of the other side. For a harness or light draught collar a perforated plate, sliding into a metal box which contains a metal tongue and spring, is preferred. The patentee does not however limit himself to either fastening. By making the collar to open the padding may be considerably narrower than usual and of such a shape as to fit the shoulders of any horse. An iron or other metal frame, attached to the body of the collar and forming a framework for it, renders separate braces unnecessary.

(Printed, &c. No Drawings.)

A.D. 1863, July 23. - N° 1848.

CLARK, WILLIAM.—(A communication from Jean Etienne Puhl.)—(Provisional protection only.)—"Improvements in saddle." Two spiral springs "of truncated conical" form, either of steel or hardened copper or other metal, are placed under the saddle seat on a wooden tree "well hollowed out." The springs are covered with two plates of steel, somewhat of a horse-shoe shape, com-

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mencing at the head of the tree and following its outline. The tree thus prepared is covered as usual.

[Printed, 4d. No Drawings.]

A.D. 1863, July 24.—N° 1852.

ENGLISH, ABRAHAM.—“Improvements in apparatus for securing and protecting horses and other cattle during their transit by rail and other ways and on board ship.” In the roof of the horse box are fixed two iron racks, to which are hooked two double straps with buckles and holes. A ring suspended from the fore strap receives a strap which is buckled round the body; to this ring is connected another, through which the chest and rearing straps pass. The chest straps proceed from a breast plate passing between the fore legs and terminating in a loop for the reception of a second body strap, which as well as the kicking strap is united by a ring to the hinder pendent strap. The rearing strap is secured to rings or staples, the kicking strap to metal loop plates, all fixed in the sides of the box. By this arrangement the straps may be shifted to suit the size of the horse, which will be unable to rear or kick, but may rest a great part of its weight on the pendent straps.

[Printed, 8d. Drawing.]

A.D. 1863, September 3.—N° 2179.

BONNEVILLE, HENRI ADRIEN.—(*A communication from Jean François Frederic Beguin.*)—“An improved mode of attaching horses to carriages or other vehicles and apparatus therefor,” whereby shafts and pole are dispensed with. The inner stays of the saddle are of iron, and to them is soldered an iron tube, containing the front end of the apparatus which is made of iron or of iron and wood; this end, which can move an inch or more backwards and forwards in the tube, is secured by a screw nut: between the nut and tube is a leather washer to prevent the contact of the metal. The nut carries a ring for a strap to connect the apparatus when there are two horses. Behind the tube the apparatus carries two branches, similar in shape to the saddle and attached thereto at their extremities by straps and rings; a brass plate on this part of the saddle prevents pressure thereon. The hinder part of the apparatus, curved like a horse’s croup, “is

“ divided from the loins of the horse into two half round “ branches ;” the upper part is covered with leather ; at about the middle on each side is a ring “ which receives one of the extre- “ mities of the bracings :” the ends are joined to the futchels, and just above the points of junction is a ring for a band fastened to the axle. When there are two horses, the branches are held in the mortises of a splinter bar. An accessory piece can be applied to the futchels or splinter bar, whereby the branches can be raised or lowered. A shield may be screwed to the apparatus for “ partly “ hiding the hinder part and tail of the horse.”

[Printed, 8d. Drawing.]

A.D. 1863, September 4.—N° 2183.

THORNHILL, CHARLES.—(*Provisional protection only.*)—“ A “ new or improved method of adapting steel or other suitable “ metallic wire to be used instead of animal bristles or hair in “ sewing boots, shoes, saddlery, and leather work generally.” The “ metallic substitute ” is made either with or without tails. A piece of wire, from four to seven inches long, is flattened at one end for a length of from two to four inches ; the flattened end is twisted into a spiral thread, to which the sewing thread can be attached. Or a piece of wire, from eight to twelve inches long, is bent double ; the one half is twisted round the other for a length of from two to four inches, leaving the untwisted ends like two tails for the attachment of the thread. In both cases the wire thus prepared is tempered to a suitable degree.

[Printed, 4d. No Drawings.]

A.D. 1863, September 16.—N° 2271.

LATCHFORD, BENJAMIN.—“ An improved spur,” or rather an improved method of fixing the spur. A metal socket is imbedded in the boot heel ; it traverses the heel from back to front and is secured therein by a “ double lugged plate.” A piece of metal, armed with a spring, serves as “ a filling or guide piece ;” it is of the same length as the socket and fits tightly therein ; the spring is a little longer and projects by the head beyond the front of the heel, which is shaped as a segment of a circle to prevent the head from coming into contact with the stirrup iron. “ To fit on the “ spur, pass the guide piece and spring from the back of the heel

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“ into the socket till the spring catches; to remove the spur, “ press upon the point or head of the spring.”

[Printed, 8d. Drawing.]

A.D. 1863, September 24.—N° 2360.

BONNEVILLE, HENRI ADRIEN.—(*A communication from Toussaint Landrin.*)—(*Provisional protection only.*)—“Improvements in horse-collars.” This invention consists “in applying a rack and pinion system” to collars for the purpose of altering them to fit the horse’s neck. The rack is composed of two stays of steel or iron, the upper parts uniting and forming a plate, which is slightly elastic and is surmounted by a leather cap “to hide the corresponding part of the rack when it is lowered.” These stays “pass under the upper part of the garniture of the collar into sheaths;” one side of each is provided with teeth, which catch in a pinion in the interior of the collar, at the extremity of each ring through which the rein passes. The rings are moveable, and by turning them the branches of the rack rise or descend.

[Printed, 6d. Drawing.]

A.D. 1863, October 1.—N° 2408.

DICKEY, GEORGE.—“Improvements in winkers or eye-screening apparatus for horses and other animals.” This apparatus “for blinking the sight, or for excluding the light” may be “of fan-like construction;” or it may be placed inside winkers new or old. The fan-like winker is composed of an inner frame and an outer frame or lever (to which the acting rein is fastened) free to move thereon on a pivot and made in two parts united by a butt hinge. The vanes of the fan move on a pivot on the inner frame, the end vanes being secured to the inner and outer frames respectively: the frames are flanged “so as to shut up together like a box.” A spiral spring keeps the winker closed and shuts it again after being used. The outer frame is jointed to prevent injury to the projecting bone of the eye when using the apparatus, and suitable means are employed for carrying the fan round and excluding the light. “An opaque elastic fabric,” mounted on carriers suitably shaped and arranged, may be substituted for the fan. In the other apparatus the winker is of the ordinary make “with the usual metal plate secured therein;” there is also a plate in the cheek strap, upon which a brass or other metal plate is

screwed; through both a slot is cut, in which a pin moves protruding from the upper end of a lever to which the acting rein is attached. The pin is fastened to one end of a jointed lever which works beneath a curved plate screwed to the winker; a hinge allows part of the curved plate to be moved from beneath by the jointed lever. "A bent piece or plate" is soldered to the curved plate; under it "the rising joint" of the lever remains when the apparatus is not in action; near the end of it is "a solid part" "protruding beneath the curved plate," to which is secured a guide having the spring rod or straight part of a coiled spring passed through its orifice. By this arrangement the curved plate may be pushed away from the winker and be caused to cover the horse's eye. The curved plate is perforated for stitching round it "an opaque lining of flexible material, and also a piping or padding of flexible or soft material to prevent injury to the animal's eye." This apparatus may be made to act "by means of a rein across the animal's face or forehead."

[Printed, *Id.* Drawing.]

A.D. 1863, October 10.—N^o 2488.

FAIRBANKS, WILLIAM BROOKS, LAVENDER, JOSEPH, and LAVENDER, FREDERICK.—"Improvements in the manufacture of hames." The draught eye is formed "with the hame all of one piece of iron." Two pieces of iron are welded at the end (sufficient for the shank and eye), or one piece only may be used and bent into form. After "the lengthway joint in the draught has been reheated and welded together," the desired form "may be imparted by this part of the hame being laid over a die and struck by a suitable hammer." From this condition it may be generally finished. A variety of shapes may be given to the shank of the eye.

[Printed, *Id.* Drawing.]

A.D. 1863, October 21.—N^o 2570.

CLARKSON, THOMAS CHARLES.—"Improvements in the manufacture of saddles and harness, and in materials for and in ornamenting the same, which improvements are applicable for parts of carriages, dress, and coverings for the head, and other articles." The first part relates to saddles and harness. The patentee makes for a mould a skeleton saddle having several

parallel ribs and screw bolts ; he sticks a strong canvas on the mould when shaped to the back of a horse and covers it with a solution of india-rubber. When dry, a layer of cork is added and coated with the same ; a layer of felt similarly coated is next applied, and another layer of cork to form the seat. The stirrup bars, spring bow, and cantle iron are then fitted on, and a thin leather is stuck over all. "Alternate layers of cork and felt with " (occasionally) leather and thin wood, or woven willow wood," are placed in different parts to give the saddle the necessary shape. Certain spaces "slightly cellular and concave" are left in certain parts to form a water or air cushion. The knee pads are made hollow ; they have a leather or calico foundation and are covered with cork and stuck on the saddle. A hogs skin or other covering is stuck on over the whole, and a lining of felt on the inside. The stirrup leather is single ; holes are bored "in the direction of the "width," through which a pin in the spring bar passes. This arrangement, namely that of a socket and pin, is employed as a substitute for buckles in fastening harness traces. The girth straps and buckles are sunk into a recess so as to cause no projection. Pack saddles are constructed similarly and of like materials. When finished, an opening is cut, the mould is taken out, and a screw plug or other waterproof securing is fitted to the opening. A pump is placed "in the pack receptacle for the pur- " pose of filling it." For strong harness a wire cord is imbedded in cork, which is covered with webs and leather. The leather is indented with a pricking machine ; and the holes are filled with white or colored cement to imitate stitches. Tugs are made with a joint, that the shafts may be removed without unbuckling the belly band. The traces have stops at their ends to dispense with "looping the trace bar pin."

The second part refers to applying "cork, manilla, or woven " wood, or thin wood," coated with solution, to calico, thin leather, cloth, &c. for the manufacture of helmets, hats, coverings for carriages, and for a variety of other purposes.

[Printed, 1s. Drawings.]

A.D. 1863, October 26.—N° 2636.

LITTLEBOY, RICHARD.—"Improvements in the manufacture " of nosebags." The nosebag is made with an india-rubber or other band round the top : the band is perforated with small

holes "for the purpose of ventilation and letting out any dust that may arise from the food when the horse tosses its head."

[Printed, 4d. No Drawings.]

A.D. 1863, November 19.—N° 2900.

BALNY, AUGUSTE.—(*Provisional protection only.*)—"An improved method of stopping horses by means of pincers to be attached to bits." The pincers are of iron or any other suitable material; they are made "to suit the size and shape of the horse's head to be acted upon," and are fixed to an ordinary bit by means of screws. "At the upper end of the pincers" are two loops, through which the reins pass; when the reins are pulled, they cause the pincers to close and pinch the nose. An elastic band, attached to each side of the bit and pincers, keeps the latter open when not in use.

[Printed, 8d. Drawing.]

A.D. 1863, December 5.—N° 3061.

WALTHEW, FREDERICK JAMES.—(*Provisional protection only.*)—"Improvements in apparatus for sustaining and lifting draught horses, to prevent them falling or injuring the vehicle to which they are attached." The patentee connects to the saddle or other sufficiently strong belt passing round the horse "a chain, cord, or strap, proceeding to the top of the vehicle and above the horse," and to the vehicle an apparatus for hauling up the chain. When there are two horses, he arranges "between and over them a pulley, mounted on an arm projecting from the vehicle," and passes round the pulley a chain or cord fastened to the saddles or belts passing round the horses, so that "if one horse slips, his weight is at once thrown on to the other." The pole or shafts may be employed for supporting and lifting, the outer end "being forced upwards so as to support the horse or horses or to lift it or them." The pulley and arm may be stationary or raised by a screw or otherwise, "so as to assist a horse that has slipped in recovering its legs, or to impede the horses in running away."

[Printed, 4d. No Drawings.]

1864.

A.D. 1864, January 6.—N° 40.

TRACY, JOHN IBBETSON, and TRACY, HENRY GEORGE.—
(Provisional protection only.)—“Improvements in the construction
 of umbrellas, parasols, and sun-shades, part of which improve-
 ments is applicable to whips, canes, and other like articles.”
 In order to produce “a more sightly joint” for the stick or stem,
 the divided parts are united by “a kind of bayonet joint fasten-
 ing,” a slotted metal tube being inserted into a hollow in the
 lower part, and “a pin of a jointed coupling” being permanently
 secured to the upper part. An improvement in the top “consists
 in providing a pin or rod (which forms a continuation of the
 “stem) for the top runner and ferrule to slide upon,” the runner
 and ferrule being connected together and forming one sliding
 piece.

[Printed, 4d. No Drawings.]

A.D. 1864, February 12.—N° 368.

WHITE, THOMAS.—“Improved machinery for uniting the soles
 and uppers of boots, shoes, and similar coverings for the
 feet, applicable also for uniting hose pipes, harness, mill straps,
 and other like purposes.” This invention has special reference
 to uniting soles and uppers. The machinery consists of an iron
 frame or standard, upon the top of which is a reel filled with
 brass or other metal wire; a main lever having its fulcrum in the
 standard and a balance weight at one end, when the machine is
 worked by hand—if it is worked by steam, a cam is applied to the
 lever—an inner slide ending in a V and actuated by the lever; an
 outer slide, working against the face of the standard and held in
 position by lips—it is suspended, when the machine is not in op-
 eration, by an elastic band attached to its lower extremity and to a
 convenient part of the standard—cranked levers affixed by their
 fulcra to the outer slide and furnished with friction rollers on
 their upper ends and with jaws or cutters on their lower ends; a
 silent feed motion (Howe’s patent) connected to the outer slide by
 studs and actuated by small levers united by chains or slotted
 levers to the main lever; and a nicker or bar sliding in a recess in
 the standard, projecting to the table (hereafter mentioned), and

having its end turned down to cut grooves in the sole. Beneath is a planed traversing table, actuated by a screw which works in a female screw (a portion of the standard); thereon is an "inter-changeable cam," supporting a last and a rack moved by pinions and bevelled wheels, the lowest of which is carried by a shaft furnished with a silent feed motion, similar to the former, and set in action by a lever connected to the main lever. The lip of the cam is "removeable, being affixed by screws and having its inner " and outer edges shaped according to the curve of the line of " rivets required." The last and last frame are caused to revolve by means of a horizontal shaft under the table, having a bevelled wheel on its extremity, which gears with the lowest wheel before-mentioned. The patentee prefers, in some cases, "to use a simplified arrangement which presents modification of details, the " principle being unaltered." He describes the modifications and also the action of the machine.

[Printed, 1s. 6d. Drawings.]

A.D. 1864, March 9.—N^o 599.

BLACKWELL, SAMUEL.—"Improvements in apparatus used for " breaking horses, and known as dumb jockeys." The patentee states that hitherto the horns of his dumb jockeys have been made of gutta percha alone or combined with wood, leather, or metal, as described in the Specification of a patent granted to him, March 9th, 1853. He now proposes to enclose in a horn of gutta percha a piece or pieces of whalebone to increase the strength and elasticity. India-rubber, ground leather, or vegetable or animal fibres, may be mixed with the gutta percha. The whalebone is imbedded while the gutta percha is plastic, and the horn and the part of the jockey from which it springs are made in one piece.

[Printed, 6d. Drawing.]

A.D. 1864, April 8.—N^o 884.

FENBY, JOSEPH BEVERLEY.—(*Provisional protection only.*)—"Improvements in buckles." The frame is nearly rectangular and has two cross bars at or near its middle, one in the same plane as the frame, the other underneath the former. The tongue turns upon the lower bar, and its point, when the buckle is in use, bears against the upper bar; the buckle is provided with a bar or plate on a somewhat lower level than the lower bar; to this plate the

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fixed portion of the strap or band is connected. At the back of the eye of the tongue is a projection, "which when the moveable strap is disengaged from the tongue is pressed upon by the said strap and the tongue is thereby made to present its point upwards so as to be ready to engage with the strap or band whenever one of the holes is brought over the point"—a spring may be fixed at the back of the eye for the same purpose. A double buckle may be made by this invention, with which two straps may be fastened end to end without either being permanently fixed to the buckle. "The straps are situated in parallel planes in the frame of the buckle, two tongues being used, one moving upwards to engage with the upper strap and the other moving downwards to engage with the lower strap."

[Printed, 4d. No Drawings.]

A.D. 1864, April 27.—N° 1059.

BROOMAN, RICHARD ARCHIBALD.—(*A communication from Julien Caillard.*)—(*Provisional protection only.*)—"An apparatus or tool for holding bits and other metal parts of harness and saddlery while being cleaned and polished." The holder consists of a brass plate or stand which carries at one end a pair of pinching jaws, one fixed, the other moveable on a hinge and moved to or from the former by means of a thumb screw. At the other end of the stand is a double clip with two fixed and two moveable jaws, the distance between which is adjustable by screws: "one clip is free to move towards the other to suit the various articles to be cleaned."

[Printed, 4d. No Drawings.]

A.D. 1864, April 28.—N° 1072.

GHISLIN, THOMAS GOULSTON.—"Improvements in the treatment and application of seaweed." The patentee employs any of the common kinds of seaweed, and, having treated them in the manner described in the Specification of his Patent dated July 15th, 1862, dries them and reduces them to an impalpable powder, or, if operated upon when wet, makes them into a paste. The powder or paste is incorporated with the following ingredients or some of them, and in proportions according to the articles to be manufactured: gums, gum resins, including india-rubber, gutta

percha, and substances of that class, resins natural or artificial, bituminous substances and the products of the same, paraffin and oily or fatty substances, fibrous materials, the silicates of potash and soda, pulverized chalk, talc, and other earthy matters, metallic oxides, gelatine, farina, alum, tungstic acid, powdered charcoal, and other analogous substances. He states the particular ingredients and the proportions which he prefers, according as he requires tenacity, elasticity, solidity, or durability. He mixes and incorporates the mass in a masticator provided with rollers or other mechanism, and then passes it between cylinders. He enumerates the various purposes for which this "algaeite" is available; amongst them are saddlery and riding and driving whips. The compound may be hardened and rendered impermeable to water "by steeping it in boiled oil, or in any drying oil, or in a solution of gum or resin, or in any kind of varnish."

[Printed, 4d. No Drawings.]

A.D. 1864, May 10.—N^o 1180.

CONDRON, THOMAS WILLIAM, CONDRON, RICHARD, and HARTSHORNE, GEORGE RAYNER.—"Improvements in the manufacture of brushes." The object of this invention is to obtain a flexible and elastic front and back to brushes of all kinds where flexibility is desirable, amongst which are horse, mane, dandy, and harness brushes. For the front or that portion which holds the materials forming "the frictional face," sheet vulcanized india-rubber is employed, or any of its compounds, alone or in combination with cloth; it is cut or moulded to the required shape and bored or punched through or partly through with holes: or the moulds may be made with studs or pins in them. The holes are filled with hair, bristles, or any kind of fibre, either drawn in with wire or set with any suitable solution or cement. The back is of form and thickness suited to the particular kind of brush to be produced, either round, hollow, ribbed, or with a core of cane or wood to give a partial rigidity, with a hand strap or straps, and with or without a handle. Sometimes there is not any covered back, and the back part is "grooved" or reeded in concentric or parallel lines," the wire lying in the grooves or between the reeds resembling a line of stitches.

[Printed, 4d. No Drawings.]

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A.D. 1864, June 7.—N° 1419.

LARMUTH, ALFRED AUGUSTUS.—“Improvements in hats, “caps, bonnets, or other such coverings for the head, which “improvements are also applicable to corsets or stays, and “saddlery or harness.” This invention consists in forming that part of the article, which presses against the head or body; plaited, “so as to constitute tubes, through which a current of “air may pass.” The plaits or corrugations, formed by goffering or other method, are not covered, and the elastic tubes yield without closing to the shape of the part on which the article is worn. The invention can be applied to saddles and to all parts of harness which press against the body of the horse.

[Printed, 8d. Drawing.]

A.D. 1864, June 30.—N° 1630.

BALANS, RAYMOND.—“An improvement in hooks for marine “and other purposes,” amongst them for saddlery and harness. At each side of the neck below the eye of the hook is a cheek piece, serving as bearings to a square pivot to which one end of a spring is fixed. A bar checks the expansion of the spring and forces the free end to press against the point of the hook which is hollowed out for its reception. A hole may be drilled in the free end, corresponding with a stud set in the hollow. The spring is of steel or brass, and, if of large size, a small chain or other pull piece is placed near the head to help to open it.

[Printed, 8d. Drawings.]

A.D. 1864, July 21.—N° 1819.

GEDGE, WILLIAM EDWARD.—(*A communication from Louis Guillaume Bartenbach.*)—“Improvements in stirrups.” The eye is attached to the branches by a rod, which passes through a socket contrived at the top of the branches and screws into a bottom piece of the eye: a spiral spring coils round part of the rod, and a nut closes the lower end of the socket; “thus the stirrup can “turn freely.” Each branch forms at its end “a sort of compass “joint” pierced with a hole. The pedal is composed of three parts, two joined by a hinge, round which one part (the middle one) turns when a tenon at its outer end has escaped from a *mortise* in the third part. The outside hinged part is screwed to

a disc which penetrates its compass joint ; and it is lengthened on the outer end by a small cylinder “ fluted exteriorly and screw-threaded interiorly ; ” the fluting enters the hole, and the thread is filled by a round headed screw “ which holds against the end “ of the cylinder a copper washer.” A small circular box, containing a spiral spring, fixes on to a screw-threaded part of the compass joint. The other outside part is attached by a button, which screws on to it and freely rotates in its hole in the joint. If the rider fall, his foot, using the frame as a fulcrum and acting like a lever on the pedal, will cause the latter to turn round, the cylinder to advance outwards in its hole, the tenon to quit its mortise, and the middle part to turn on its hinge. The pedal may be made in two parts, opening in the middle and held together from beneath by an S shaped piece ; or in one piece, attached to one branch by a screw button and to the other by entering an opening therein, a sector being previously removed. The details of these modifications and of others besides are given in the Specification.

[Printed, 1s. 10d. Drawings.]

A.D. 1864, July 25.—N^o 1846.

WHITE, JAMES CHADNOR.—“ An improved apparatus for “ holding whips and other articles.” The apparatus is composed of a plate of metal or any suitable material with conveniences for fixing it to any place, and “ two edges of leather ” or other substance set at an angle and continually pressed together by a spring working behind the plate. The leathers may be rivetted to holders or made to cover thin sheets of metal acted on by the spring. The holding edges may be of india-rubber and clenched to the holders ; in this modification a back spring is not necessary. For holding driving reins when not in use, the holders are rivetted to a spring clip hooked on to the dash board. For holding billiard cues and such like articles, holding edges are cut in a piece of india-rubber having holes punched therein : the rubber, of any shape, may be secured between two pieces of wood or metal and supported by a stand.

[Printed 8d. Drawing.]

A.D. 1864, July 28.—N^o 1881.

NEWSOME, JAMES.—“ Improvements in apparatus for breaking “ horses.” A girth or belt of leather or other suitable material is

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attached to the saddle and passes under the belly. To the upper part of the girth on each side a spring lever is fixed ; into the lower part of each lever a spur is inserted, “whilst on the side of “ the levers opposite to that on which the spurs are placed eyes “ are formed, into which passes the end of a rope or cord, which “ also passes through other eyes fixed into a metal plate at the “ lower part of the girth underneath the animal’s belly.” A lunge is fastened to this rope, and by pulling it the spurs “ are “ caused to impinge upon the animal’s sides.”

[Printed 4d. No Drawings.]

A.D. 1864, August 16.—N° 2039.

DARCAGNE, CHARLES FRANÇOIS.—“A new mode of treating “ or preparing the sorgho plant (*holcus sorghum*), so as to render “ the fibre thereof useful in manufactures as a substitute for “ horsehair and otherwise,” and as a stuffing for saddles. The plant, either in its green or dry state, is soaked in salt water without the use of other chemical agents until it becomes soft. The branches or paniculae are then cut into pieces in a machine similar to a chaff cutter ; these parts “form a material similar to “ hemp ;” they are put into a double cylinder (formed with flutings or channels) working in opposite directions, and afterwards removed, combed, and washed in tepid water, when they are ready to be manufactured as may be desired. The patentee describes his method of treating the fibres when they are to be employed for textile fabrics, or “half-stuff for paper makers” (for this purpose he uses the whole plant) ; also his mode of bleaching it and of rendering it very soft.

[Printed, 4d. No Drawings.]

A.D. 1864, September 28.—N° 2378.

DAVIES, GEORGE.—(*A communication from Henry Louis Charlemagne Lhuillier.*)—“The employment and application of thin strips “ or sheets of wood for various new and useful purposes.” The strips or sheets of various widths and of any kind of wood, and cut by any suitable means, are introduced by glueing, cementing, sewing, or otherwise, between pieces of leather, thereby resisting damp and obtaining with economy the thickness desired. This invention is applicable to harness, saddlery, soles, driving belts, carts, boxes, and many other articles.

[Printed, 4d. No Drawings.]

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A.D. 1864, October 7.—N° 2477.

KEMP, HENRY, and KEMP, FRANCIS JOHN.—“ Improvements in the preparation and hardening of leather for boot and shoe soles, straps, and bands, and other purposes.” The leather is placed in a close vessel and covered with a liquid compound of wood tar dissolved in methylated spirit or pure spirits of wine, caoutchouc or gutta percha or other suitable gum dissolved in naphtha or other solvent, and a proportion of dissolved shell-lac. The air is exhausted from the vessel, and the “ process of impregnation may be facilitated by forcing air under pressure into the cylinder above the compound.” Modifications of the process are detailed in the Specification; but the patentees do not confine themselves “ to any particular mode or process for injecting the leather or arranging the materials.” The invention is especially applicable to shoulder leather, which is “ more porous and less valuable than some other parts of the hide.” For harness, straps, soles, and the like, the leather should be first cut or stamped to the required size; but skins may be subjected to the process, whole or in pieces. In all cases the leather must afterwards be submitted to mechanical pressure, to expel the superfluous liquid, and then set aside to dry.

[Printed, 4d. No Drawings.]

A.D. 1864, November 2.—N° 2705.

RICHARDSON, ROBERT.—“ Improvements in clothing for covering and protecting horses, cattle, and other domestic animals,” while grazing or in open cattle folds. The covering is a waterproof cloth of such size as to extend from the tail to a little above the shoulders, and so far down each side that the rain, &c. will drop off on to the ground. At each corner is a rope or cord, which passes round each leg and is fastened to an eyelet hole in the edge of the cover: a crupper and a girth may be added. For ventilation a number of ropes or cords or india-rubber tubes run inside the length of the cover, bound, sewed, or otherwise fastened on thereto.

[Printed, 8d. Drawing.]

A.D. 1864, November 4.—N° 2737.

BOWLEY, ROBERT KANZOW, and BOWLEY, KANZOW THOMAS.—“ Improvements in spurs,” which are formed with

plugs for attaching them by sockets or holes to the heels of boots. The plug is bent or cranked and fits into a corresponding recess in the boss, into which it is brazed or otherwise secured. "By" "these means the spur is raised higher on to the seat of the "boot than when the plug is formed straight as commonly "practised."

[Printed, 6d. Drawing.]

A.D. 1864, November 12.—N° 2823.

CADMAN, CHARLES SHIRLEY.—(*Provisional protection only.*)—
"An improvement applicable to whips, umbrellas, and parasols, "and walking sticks, and canes." These articles are made with "detachable handles;" the end of the stick is fitted with a slightly conical plug, which "carries at its end a strong socket pin "for giving steadiness to the joint, and from this pin projects a "short stud." The handle is formed with a metal socket, which is slotted to make with the stud a bayonet joint.

[Printed, 4d. No Drawings.]

A.D. 1864, November 23.—N° 2925.

PRIOLEAU, GERMAIN.—"A new apparatus for instantaneously "releasing horses from carriages." The release is effected by means of a buckle which unites the traces to the collar. The buckle is constructed as follows: a flat piece of metal, provided with a jointed tongue, slides to and fro; it has two notches on one side, one serving to give it a forward motion, the other to keep it in position by engaging with the tooth or stud of a spring. On the other side is "an elbowed lever" with two arms, one of which presses against the spring when the elbowed part is pulled by a cord within the driver's reach; when this is done, the piece recedes with its tongue, which is then disengaged from the trace. The breeching straps are attached to the back strap; or they may be fastened by rings to bent metallic bands, the fore ends of which act as springs and press against the shafts; or the breeching may be made in two parts connected on the croup by a pin which can be drawn out by a cord. For two-horse harness the same sort of buckle is employed: the breeching straps are joined by rings to a cylinder (at the end of the pole) furnished on each side with a bent spring as before described.

[Printed, 6d. Drawing.]

A.D. 1864, December 14.—Nº 3095.

THOMPSON, JACOB BAYNES.—“ Improvements in coating iron “ and steel with silver, gold, platinum, or palladium, and in orna- “ menting articles with such metals,” among the articles being carriage harness, spurs, and stirrups. The alloy, with which the metal is first coated, is composed of 60 parts of tin, 20 of copper, and 20 of nickel : silver or copper may be substituted for the nickel in equal quantities, or silver for the copper and nickel. The nickel is melted first, then the copper is added, and lastly the tin : the surface of the alloy is covered “ with a flux, sal-ammoniac, “ or borax.” The dippings are made as rapidly as convenient; the article is then plunged into melted oil and tallow ; the alloy remaining on the surface is wiped off, and the article is plunged into cold water ; it is next washed with a solution of caustic potash, and dipped in a cold bath of one part of commercial hydrochloric acid mixed with four parts of water. It is now ready for the ordinary depositing bath. For ornamenting a silver ground with gold and platinum, a pencil is employed made of fine spun glass, asbestos fibre, or hair (sable hair by preference) ; it has a hole down the middle of the handle for the battery wire. “ A strand “ of fine platinum or gold wires, according to the solution with “ which the pencil is used, should be spread out in the brush part “ of the pencil, but only sufficiently extended to be in contact “ with the solution held in the brush, and these wires should be “ connected above through the handle by means of an insulated “ copper wire to the positive pole of a battery, while the article to “ be ornamented is connected to the negative pole.” The solutions used in working with this process “ are such as are employed “ for electro-deposition in a bath.”

[Printed, 4d. No Drawings.]

A.D. 1864, December 24.—Nº 3211.

ROBERTSON, JAMES PETER.—“ An improved connector ap- “ plicable to bales used in cavalry stables and other purposes.” The connector consists of two separate links, united by a ring or hollow ball which covers the junction ; one link “ has a portion cut “ off of its lower end diagonally” and a groove or cavity for receiving the appropriately formed end of the other link. When these ends are brought together, they form a cone which is covered by the ring or ball. At the other end of each link is an eye for attach-

ment to a suspending or connecting rope or chain. When the connector is used horizontally, a spring or other contrivance may be employed to keep the ring in its position, and any mechanism for moving it.

[Printed, 8d. Drawing.]

1865.

A.D. 1865, January 9.—N° 66.

WEBER, LIONEL.—“ Improvements in bits for horses and other animals.” This bit is composed of two cheek pieces on each side connected at the top by a pin joint, the outer being shorter than the inner pair. Each pair carries a mouth bar: at the lower ends of each pair are the rein rings; and the tops of the shorter pair are provided with rings for the attachment of the headstalls and the curb chain. When the upper reins are pulled, the bit acts as a snaffle; but, on pulling the lower ones, the bars separate and “ press upon both jaws of the animal.”

[Printed, 6d. Drawing.]

A.D. 1865, January 19.—N° 169.

CLARK, WILLIAM.—(*A communication from Toussaint Landrin.*)—(*Provisional protection only.*)—“ Improvements in the manufacture of boots, shoes, saddlery, harness, and other articles.” The invention is the uniting leather and other articles by a solation of gutta percha, india-rubber, or other equivalent. First, considerable pressure is exerted by means of any suitable apparatus, but particularly by the employment of closed or partially closed matrices enclosing all the parts of the articles in process of manufacture which are to be united by means of the adhesive substances; secondly, these substances are heated by means of a blow-pipe and heated air. Another part of the invention consists “ in forming hollow articles of leather or suitable fabrics by the aid of compressed air acting on an internal elastic core of india-rubber, vulcanized or otherwise,” or other expansive substance.

[6d. No Drawings.]

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A.D. 1865, January 27.—N^o 239.

SOUTHALL, JOHN, the younger, and SOUTHALL, HENRY.—“ Improvements in the manufacture of saddletrees, and in the “ spring bars of saddletrees.” The trees are made of papier mâché or other vegetable fibrous substance combined with horsehair or other hair, in the proportion of about one-third, and in trees of the best quality nearly one-half, in weight of hair. The mixture is pressed into a mould of the required figure, and the customary plates of iron (for increasing the strength) are placed therein: the tree is afterwards hardened and dried. The spring tongue is jointed to the upper, instead of, as is usually done, to the lower fork of the spring bar.

[Printed, 6d. Drawing.]

A.D. 1865, February 20.—N^o 477.

GEDGE, WILLIAM EDWARD.—(*A communication from François Stoker.*)—“ A chemical combustible substance, and apparatus to “ which it is applicable,” namely, to foot warmers, chafing dishes, stirrups, portable kitchens, smoothing and soldering irons, tea-urns, and coffee-pots, “ finally, to every apparatus where heat “ or fire is required.” The substance or fuel is composed “ principally of carbon obtained from the distillation of light woods “ in a close receptacle, say, two-thirds ‘fusain’ (the charcoal used “ by artists) reduced to powder, and one-third vinegar charcoal.” To this mixture, which serves for basis, various metallic salts are added, “ such as nitrates of soda, of potash, or of baryta, which “ play the part of combustible and oxygenating bodies, their pro-“ portions varying with the amount of caloric required from the “ fuel. Lastly, agglomerating bodies, such as gum adraganth, “ fecula, starch or dextrine, are added in proportions varying from “ two to five per cent. The whole having been well triturated “ can be pressed and moulded into very compact cakes.” This fuel “ may be lit by an ordinary lucifer match, and give out “ a heat of from 77 degrees Fahrenheit (25 degrees Centigrade) “ up to 848 degrees Fahrenheit (400 degrees Centigrade), ac-“ cordingly as its combustion is quickened or slackened.” The box, inside of which it is placed, is of wire gauze or perforated metal, and provided with regulators for increasing or decreasing the draught. A foot warmer for a stirrup is made and attached.

as follows :—Two pins with shoulders are riveted to the bottom of an outer case ; the shoulders support a frame covered with wire gauze on which the fuel rests ; a similar frame is placed above the fuel and is held in position by a spiral spring. The lid of the warmer is the pedal of the stirrup ; it turns on a hinge at one end and is closed at the other by a spring catch. At each extremity of the case are “two suspension clasps ;” two are fixed and placed “on the lateral edge of the stirrup ;” two are moveable and “are pushed on to the other edge,” where the lid “in falling “fixes them, and the apparatus is then entirely put together.” The construction of a foot warmer, a smoothing iron, and a soldering iron, is described in the specification.

[Printed, 8d. Drawing.]

A.D. 1865, March 2.—N^o 589.

ROTHWELL, PETER.—“ Improvements in arrangements or “apparatus to be applied to vehicles drawn by horses, to “restrain and prevent them from running away.” For two-wheeled carriages a horizontal shaft (made by preference of tubing) is suspended across the carriage, parallel to the axle-tree, in slotted bearings fixed to the springs. Upon each end of the shaft is a pulley having its periphery covered with leather “to “give adhesion when pressed against the naves.” The shaft rotates freely at its middle in a link, the upper end of which is jointed to an arm : to the arm is attached a lever system (extending upwards to one side of the carriage) by means of which the shaft can be pulled forward until both pulleys press against the naves. The action of the lever is regulated by properly arranged rack, catch, and spring. The lever handle may be jointed or not, or the lever may be placed so as to be acted upon by the driver’s foot. To each side of the shaft is fastened a strap which passes to the bit, so that, when the shaft rotates, the straps are wound round it and pull up the horse. The patentee describes certain alterations required for a four-wheeled carriage ; but he prefers the following apparatus : the shaft is carried in bearings attached to the hind springs ; the pulleys are arranged as above ; and india-rubber springs are secured to bolts forming the end joints of the carriage springs. The rubber springs pass round bushes loose the shaft, and serve to pull it back and bring the pulleys contact with the naves. Ropes, chains, or belts fastened

to the shaft, pass under the bottom of the carriage, round anti-friction pulleys to pulleys upon or below the axis on which the four wheels swivel, thence to pulleys upon the shafts, and along each shaft to the bit. Instead of branching to each side, the ropes may be united after passing the axis and taken up in front of the splash board, and "connected with slack branches from the reins." When there are two or more horses, "the same apparatus will do" by using as many additional straps as there are horses," or by making each strap from the shaft "branch into two or more."

[Printed, 8d. Drawing.]

A.D. 1865, March 4.—N° 610.

COTTAM, LOUIS LE CHEVALLIER.—"An improvement in fitting sliding partitions in stables and other buildings." The grooved sills, in which the bottom of the wooden partition or other work is received and slides, are constructed with dovetail wedges capable of being removed; by this contrivance any part of the partition, which has been injured, may be readily removed. Sometimes "one of the sides or walls, or part thereof, of the sill" is hinged to the other part, instead of employing wedges.

[Printed, 8d. Drawing.]

A.D. 1865, March 28.—N° 869.

NORRIS, JOHN, junior.—"A new or improved apparatus for grooming horses." On a pedestal is a standard turning in a collar so as to be capable of swivelling in any direction: the standard carries a grooved wheel mounted on an axis, to which a winch handle is fixed. In the groove runs an endless band, which passes round a small grooved wheel on the squared end of a spindle: the spindle is also squared at the part which carries a cylindrical brush, but is rounded where it passes through the handles and turns loosely therein. A guide pulley prevents the driving band from slipping out of the groove of the small wheel, as the brush is turned in various directions.

[Printed, 8d. Drawing.]

A.D. 1865, April 1.—N° 920.

DRINKWATER, JOHN.—(*Provisional protection only.*)—"An improved application of rotating brushes, and in the mechanism and apparatus connected therewith." The mechanism "consists

“ in the employment of a thin hollow cylinder or drum attached “ to the driving shaft by means of light arms or carriers, and “ covered or coated on its periphery with a surface of leather, “ india-rubber, composition, or cloth, in which the bristles are to “ be secured.” The brush may be caused to rotate by hand “ by securing a spur wheel on the end of the driving shaft and “ gearing a larger wheel into it, which may be driven by a handle “ projecting therefrom, or bevel wheels may be used, or a band “ and pulley may be adapted, so as to be driven by steam or other “ power.” This apparatus for grooming or brushing horses and other animals “ is supported in the hand by means of handles “ projecting from the central shaft.”

[Printed, 4*l.* No Drawings.]

A.D. 1865, April 6.—N^o 973.

MAYNARD, ROBERT.—“ Improvements in machinery for cutting the human hair, the same being applicable for shearing “ horses.” A fixed knife is made fast to a frame which supports a spindle: on the spindle, continued through a handle within which it revolves, are a pulley and a drum which carries one or more spiral knives. As the drum revolves by an elastic strap leading from any motive power to the pulley, the knives are brought into contact with the fixed knife and cut the hair which is presented between them. A comb is moved by a lever to any intermediate distance from the fixed knife; or a number of teeth forming a comb may be attached to the knife; or a comb may be attached in any convenient way for holding the hair while the knives are cutting it. The machine is held by the operator.

[Printed, 1*s.* Drawings.]

A.D. 1865, April 12.—N^o 1038.

HAWORTH, JOHN.—“ An improved application of rotating “ brushes to the grooming or cleaning of horses and other “ quadrupeds.” The brush, spherical and made by preference of bristles fixed in a wooden block, is screwed to the end of a pole, on which are mounted two handles loose thereon, “ but “ held lengthways by set washers.” To the pole is fastened a flanged pulley turned rapidly by a strap which passes over a drum on the driving shaft. At the end of the pole is a counterbalancing weight to relieve the operator from the weight of the brush.

[Printed, 8*d.* Drawing.]

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A.D. 1865, May 1.—N° 1218.

NEWTON, WILLIAM EDWARD.—(*A communication from the American Waterproof Cloth Company.*)—“Improvements in the manufacture of flock fabrics.” This invention aims at overcoming difficulties which have been experienced in dyeing or printing “waterproof cloths with woollen, silk, or fur surfaces.” Hitherto “a colored flock for the face of the goods” has been used, owing to the fact that by the processes adopted more or less of the gums used has been sent to the surface of the cloth, and thus “a tendency to deaden or destroy the color as well as to give the face of the goods a spotted appearance has been created.” By this invention the cloth is submitted to a steam heat of from 220° to 290° Fahrenheit for 20 or 30 minutes. “This process has the effect of evolving all the chemical action produced by the ingredients used in the rubber, gutta-percha, or other mixtures of which the cloth is composed; after this the cloth is submitted to a bath of muriate of tin at from four degrees to twelve degrees of strength.” After removing the goods from this bath, “they are submitted to a bath of aqua ammonia and sal soda of a strength sufficient to neutralize the muriatic acid or any impurities or other chemical negatives which may be upon the face of the cloth; this latter application may be used either before or after the bath of muriate of tin. The goods are then submitted to a solution of sulphuric acid and chloride of lime in order to thoroughly oxydize the previous deposit of tin, and afterwards to a solution of sulphuric acid and water to remove the lime.” A mordant is thus formed for any colour in dyeing or printing, and the desired colour may be obtained “at a lower temperature of heat or steam, and of a more uniform and beautiful shade than by any process heretofore known.” By this invention cloths “impervious to water, dampness, or dust,” can be produced suitable for piano, table, and other furniture covers, robe linings, travelling bags, shoes and shoe linings, saddle cloths, hats, caps, carpets, clothing, “and a vast number of other uses to which woollen, silk, or other expensive goods have hitherto been applied.”

[Printed, 4d. No Drawings.]

A.D. 1865, May 1.—N° 1222.

ALLENDER, JOSEPH FELIX, and CASHIN, THOMAS FREDERICK.—(*Provisional protection only.*) —“Improvements in

“ fasteners for driving bands, straps, belts, harness, or other such “ like purposes.” The fastener consists of a metallic plate to be rivetted to one end of the strap : the plate is formed with lugs “ between which is fixed a fluted eccentric roll” turning freely therein. When the roll is in such a position “that the shortest radius “ of the eccentric is opposite the plate,” the free end of the strap is passed beneath it : when the roll is turned, it presses upon the strap “the more tightly the greater the strain upon it.” For some purposes there may be “two or more rolls working in one “ plate or frame, and for the eccentric roll, working on an axis, a “ bar to slide in an inclined slot in the lugs, and act as a wedge, “ may be substituted.”

[Printed, 4d. No Drawings.]

A.D. 1865, May 9.—N° 1285.

HUDSON, SAMUEL.—(*Provisional protection only.*)—“ An im-“ proved safety stirrup for ladies’ and gentlemen’s riding saddles,” so constructed that, when the pressure of the foot is removed from the sole, a slight pull outwards on one of the stirrup legs will cause it to separate from the instep or top of the arch, and (being hinged at the lower end where it joins the sole) to turn down so as to release the rider’s foot. To the end of this moveable leg is attached at right angles a thin plate of steel, which extends across the sole, so that the leg is kept in its vertical position by the pressure of the foot. This position is further secured by a spring (attached to the side of the sole farthest from the hinge) the end of which acts upon the end of the leg. The strength of the arch in connection with the leg is increased by a pivot or pin which passes from the arch through the leg. “ To allow the side of the “ stirrup to turn upside down, so as to completely disengage the “ foot, the end of the spring is allowed to pass through an aper-“ ture made in the middle of the leg for that purpose.”

[Printed, 4d. No Drawings.]

A.D. 1865, May 31.—N° 1490.

BROWNE, THOMAS APPLETON, and KNIGHT, JOHN.—“ Im-“ provements in driving apparatus for hair brushing and sham-“ pooing by machinery.” The apparatus consists of driving shaft, arms, pulleys and bands, and brush. The shaft works in hangers or bearings and is turned by hand or power in the usual

manner. There may be any number of arms; each is placed loosely "on bosses cast to the bearings" or "on the shaft itself," and it "can be moved either way in a rotary direction;" it carries at the front a two-grooved pulley, one groove corresponding with a pulley fixed to the shaft, the other with the pulley to which the brush is connected. At the back of each arm a short arm projects which is united to a stationary pin by a metal or india-rubber spring; this arrangement causes the brush hand "to be always "tight in any position in which the brush is placed," and the front arm "to rise out of the way when not in use." The spring may be dispensed with by hanging one or more weights on the short arm, or by lengthening the short arm and employing an adjustable weight. Sometimes the short arm is omitted, and the front arm is suspended "by one or more springs to a hook or bolt "fixed to an overhead beam," or it is attached "to a cord or chain "passing over guide pulleys and supporting one or more weights." When this "improved driving apparatus is to be applied to machinery for brushing and shampooing horses and cattle, the "arms must be of sufficient length to allow them to move up "and down the required distance, and in this case weights must "be used to raise the arms out of the way when not in use."

[Printed, 10d. Drawing.]

A.D. 1865, June 15.—N° 1617.

DUBOIS, JULES FRANÇOIS.—(*Provisional protection only.*)— "An improved bit for subduing or stopping run-away or restive "horses." This invention "consists in reversing at will the "action of the bit by causing it to operate on the upper bars and "the roof of the mouth at the same time that an ordinary curb "acts on the forehead and upper part of the nostrils." The arms of the bit are bent forward and united by a small bar to which a safety guide is fixed; this guide passes over the nose-band, the middle of the front, and the nape of the neck up to the driver's hand: if the bit arms are not united, a forked guide or two guides are employed. "The curb takes the form of the fore- "head, and is composed of a small chain, or of a metallic band, "or of the union of both. Each of the extremities is attached to "the upper part of the bit arms, and a hook stops the curb in "the middle." To shoe a restive horse the safety guide is fastened to a ring "set close the withers."

[Printed, 1d. No Drawing.]

A.D. 1865, August 23.—N° 2172.

TONGUE, JOHN GARRETT.—(*A communication from François Romain Carron, junior.*)—(*Provisional protection only.*)—“ Improvements in apparatus for shearing or ‘clipping’ horses or other animals.” The apparatus consists of a frame upon which an axis or cylinder revolves in bearings: the cylinder has on it a series of helicoidal blades, “ which in their rotation sever the hairs introduced between them (by a comb), and an adjustable blade or plate in combination with the comb.” The apparatus is furnished with a handle to be held in one hand, while the other moves a winch mounted on a frame, and by suitable gearing giving motion to the cutters. The comb and blade are carried by supports moving on centres, and are capable of adjustment by means of set screws. Oil is supplied to the cutters by means of a strip of leather or the like from a reservoir supported above or near to some point in their revolution. In order to distend those parts of the skin which are wrinkled or irregular a rectangular frame is employed, projecting in advance of the comb, and stretching the skin and rendering it even, preparatory to the action of the comb and cutters thereon: the frame can be moved away behind the comb and cutters when not required.

[Printed, 4d. No Drawings.]

A.D. 1865, August 29.—N° 2214.

HOLMES, ROBERT THOMAS.—“ Improvements in machinery or apparatus for disengaging runaway horses from carriages, and stopping them, so as to prevent accidents.” In a single-horse vehicle a duplicate futchel is placed beneath the ordinary one; at the front ends are sockets to admit the ends of the ordinary one; on the sides are hooks for the attachment of the traces; and at the back end a pierced projection which enters a socket in a bracket fixed to the lower bed of the vehicle. The perch bolt (which is hollow) connects the upper and lower beds; above and below these are nuts “ which take into a thread tapped on to the upper and lower ends of the perch bolt.” The bracket “ secures the perch bolt in its position by preventing the nut turning round.” A solid pin passes through the perch bolt and the hole in the duplicate futchel; its top is connected to one arm of a lever by a short rod jointed to one end thereof. The fulcrum of the lever is on the upper bed (by preference); the other arm is

continued "to any convenient position for the driver to press upon " with his foot or otherwise." On the lever is a forked clip, which, while the duplicate is attached to the vehicle by the pin, allows the lower bed to pass freely below it; but, on depressing the lever and thereby withdrawing the pin from its hold upon the duplicate, the clip descends on each side of the lower bed and prevents its turning on the perch bolt, "by which means the " carriage will be prevented from deviating out of its direct " course." The shafts are attached to the sockets on the duplicate, and "a spring placed on the under side of the shafts acts " on the duplicate futchel and prevents the shafts from falling on " the ground." When the machinery is set at work, "the horse " with the whole of its harness, and with the duplicate futchel " suspended horizontally and clear of its hocks, is at once free " from all connection with the carriage." In a modification there is no duplicate futchel; the ordinary one is fixed to the lower bed, and on each side is a lever (or system of levers) to one end of which is fastened a cord or chain; the cords pass by guides over rollers to any convenient place within the driver's reach. The shafts are inserted into sockets and held by pins; springs retain the shafts in a horizontal position. The traces are attached to the futchels by pins which pass through openings in stud plates, and which are withdrawn by the action of the levers. The tug hooks open outwards towards the horse's head, and the back band and the kicking strap are so arranged that, when the cords are pulled and the pins are withdrawn, "the horse advancing will " cause the tugs to slip off the horizontal hooks, and the carriage " with shafts attached will be left behind." The invention is adapted to vehicles drawn by two horses "by merely multiplying " the number of levers and their attachments, and connecting " them to the splinter-bar or under-bed by any suitable mechan- " cal means, or by working a number of bolts or pins placed " suitably on a single bolt, rod, or chain, which bolts or pins pass " through the traces or links, and enter sockets in the manner " already described." The pole cap is by preference a 'socket which fits easily on the pole; the pole has a stud or studs fixed on the under side near the end, and the cap has a slot cut in it to allow of its passing by the studs. When the horses are released, they carry the cap away with the traces. Sometimes springs are employed to keep the levers pressed in their required position, sometimes catches or other equivalent means. In each

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arrangement a long rein is used, "in order that the horse or
" horses may be somewhat under the control of the driver when
" released from the carriage."

[Printed, 8d. Drawing.]

A.D. 1865, September 11.—N° 2320.

DAVIS, SAMUEL.—"An improved stirrup latch bar." On the upper part of an iron plate, which is secured to the saddle-tree, one end of a bar is loosely rivetted, the other end being formed with a hook at right angles to the vertical part. The lower or horizontal bar is also loosely rivetted at one end to the plate, and at the other end a slot is cut, corresponding in size and shape with the hook. When the two bars are brought together, they form a mortise and tenon joint, capable of resisting any downward pressure; but, if the stirrup strap be pulled backward, the force will then be transferred to the vertical bar, which will be forced away from the horizontal bar, and the strap will be released. For greater security a spring is fastened to the under side of the horizontal bar, and the end of it clips the bottom (which is "fashioned in a curved line") of the hook as soon as it enters the slot. A small plate rivetted across the angle of the vertical bar, "serves as a guide for the strap in the operation, whereby its bearing is shifted from one bar to the other."

[Printed, 8d. Drawing.]

A.D. 1865, September 15.—N° 2366.

CLARK, WILLIAM.—(*A communication from the Chevalier Achille Angelini.*)—"Improvements in saddles and harness." This invention "consists essentially in entirely dispensing with the linings " of saddles, and also in part or wholly with the padding or " cushions of saddles and harness generally, substituting there- " for a novel species of cushion of elastic material, which is how- " ever entirely different to the bags sometimes used filled with " compressed air." The cushions are made of gutta percha or india-rubber (vulcanized or otherwise) of various forms, the prin- cipal of which are tubes, double tubes, cubes, sponge form, or detached knobs; all have small perforations therein "to facilitate " the evaporation of the sweat;" they are moulded in continuous connection, or they may be separately applied, side by side, hori-

zontally or vertically, on a strip of leather or on a sheet of india-rubber. In saddles, cushions are substituted for pannels and are placed between the two linings; all the inner portions, not occupied by the cushions, are padded as usual. Arrangements, stated in the Specification, are made for obtaining a free circulation of air. The cushions may be detached and strapped on underneath the saddle. In collars, the cushions occupy the space between the stuffing and inner lining; or a false collar may be provided, consisting of a large elastic cushion, sufficient to cover that part of the animal which bears the strain. In breast bands, the cushions are introduced between the outer and inner leathers; or a false band, of the exact form of the breast band, may be "attached lower down, with a view to cover the chest and "shoulders." The patentee claims nineteen advantages to be derived "from the use of india-rubber cushions as compared with "woollen saddle cloths."

[Printed, 10*z.* Drawing.]

A.D. 1865, September 28.—N° 2499.

COTTAM, EDWARD.—"Improvements in fittings for stables, "cow sheds, and piggeries, and in effluvium traps for stables "and other places." The first part of this invention consists in constructing portable fittings. In stables, the panels, by preference of iron, for the head and upper portions of the sides are bolted to frames or pillars, which fit into sockets formed in the floor: "the remaining parts of the sides are by preference of wood "supported upon sills, and those sills by preference such as are "the subject of Letters Patent granted to Louis Le Chevallier "Cottam on the 4th March 1865, N° 610." In cow sheds and piggeries, metal frames are used, the pillars of which drop into sockets in the floor; and these frames support troughs and pans for containing the liquid and solid food. The second part relates to the construction of effluvium traps. The trap, the shape of which may be modified, is provided with "a double dipping "plate," the lower ends coming below the liquid level. A pipe carries away "any gases which in tending to return through the "trap bubble up into the space between the two portions of the "dipping plate." There may be a box on the top of the trap for containing charcoal. This invention may be applied "to an

“ ordinary dip.” The “ hollow dipping plate ” forms a portion of a box, whose lower end “ dips into the liquid in the trap, and “ thereby acts as an intercepting chamber for the gases,” which are carried off by a pipe as before mentioned.

[Printed, 10d. Drawing.]

A.D. 1865, September 30.—No 2514.

WILLACY, ROBERT.—“ Improvements in machinery or apparatus for preparing and supplying food for cattle.” This invention consists in combining “ a turnip cutter or an oil cake or corn crusher or bruise, or other like food preparer,” with a waggon which runs along trams laid down inside the cattle shed and parallel with the trough. The waggon supports the food preparing machinery and the gearing and shafts for actuating the same. On one of the axles is fitted loosely a spur wheel connected thereto by a “ clutch worked by a clutch lever;” this wheel gears into another (on an intermediate shaft) and receives motion from a pinion keyed on the shaft of the root cutter. The shaft is divided, or made in two parts, the division being near the pinion: on the part farther from the trough are a fly wheel, a winch handle with its requisite accompaniments, and the pinion; on the nearer part are a sliding clutch box and the root cutter. The waggon carries also an ordinary hopper for the reception of the food to be cut, and an ordinary oil cake mill or corn crusher, whose rollers receive motion through a sliding pinion from the shaft by the aid of bevel gearing. The food drops through a shoot into a long trough while the machine is travelling along the tramway: “ this trough is of an angular section, being formed of two stone slabs, wooden boards, or metal plates,” one being fixed in the ground, while the other “ meets it at an angle on a level about with the surface of the floor;” it is divided into compartments. A fence or guard extends along the entire length of the cow-house “ to protect the heads of the cattle from contact with the machine as it passes along.” A footboard may be attached for the attendant to stand upon, and so travel with the machine. Horse or other power may be employed, “ in which case the gearing in connection with the running wheels would transmit motion to the main shaft.”

[Printed, 6d. Drawing.]

A.D. 1865, October 7.—N^o 2592.

THOMPSON, JACOB BAINES.—“Improvements in coating “iron and steel with gold, silver, platinum, or copper.” Ten parts by weight of ferrocyanide of potassium are dissolved in forty parts of water; a solution of fused hydrate of potash is prepared by dissolving three parts of potash in six of water; the two solutions are mixed together, and the depositing vessel is charged therewith. “In place of the potash solution, soda may be substituted, in which case two and a half parts of fused hydrate of soda should be dissolved in five parts of water.” The article to be coated, being thoroughly cleaned, is dipped and moved about for a short time in a mixture of hydrochloric acid and water, “say, one part of acid to one or two parts of water, according to the strength of the commercial acid;” after being washed in a weak alkaline solution and then in clean water, it is immersed in the vessel and connected with the negative pole of the battery; and an iron plate of about the same amount of surface as the article is immersed in the vessel and connected with the positive pole. “The bath should be kept at a temperature of from 100 to 120 degrees Fahrenheit, and the intensity of the battery should be such that when at work a few bubbles of gas only are given off; after a time, varying usually from two to four hours, the article will have acquired a brilliant white silvery appearance, it is then removed from the iron bath, washed rapidly with a cold and nearly saturated solution of ferrocyanide of potassium, and it is at once transferred to the second bath for the deposition upon it of gold, silver, platinum, or copper.” For gold and silver the ordinary cyanide baths are employed; “for platinum an alkaline sodio-chloride solution, or a cyanide solution is used;” for copper “the ordinary cyanide solution, or a solution of hydrated oxyde of copper in hyposulphite of soda” in the proportion of one part of the latter to four parts of water, adding as much of the former as it will dissolve: “this solution should be gradually strengthened after the first film is deposited, and it should be worked at a temperature of not less than 60° Fahrenheit, and with an anode of copper of about the size of the article to be coated.” The composition of the baths may be varied. “Articles which will be subjected to much friction (such as knife and fork blades, carriage harness, &c.), after being coated with with silver or gold,” should be subjected to a heat “sufficient

“ to cause the articles to char paper or wood when pressed upon either.”

[Printed, 4d. No Drawings.]

A.D. 1865, October 11.—N° 2619.

CRUTCHETT, JAMES.—“ Improvements in the manufacture of “ bands, belts, or straps for harness, for driving machinery, or for “ other purposes.” This invention has for its object the strengthening of materials suitable for the manufacture of the articles mentioned in the title. For this purpose lengths of steel, iron, or other metal wire, plain and single, or twisted and combined, according to the strength required, are fixed to or around eyelets, studs, rivets, or buckle-bars, and stitched or riveted to the surface, or between two surfaces, of leather, india-rubber, or other flexible material. The ends of the bands, straps, &c. are furnished with eyelets, loops, plates, buckles, or pins, as may be found best suited for attachment.

[Printed, 8d. Drawing.]

A.D. 1865, October 12.—N° 2630.

LERENARD, AUGUSTE AIMÉ.—“ A new composition of indian “ rubber mastic or cement, made in a more or less fluid state “ according to the use to be made of it, and the process or con- “ trivance for applying the same.” This cement is composed of about 12 lbs. of solution of india-rubber, 6 lbs. of rag paper pulp, 12 lbs. of potters’ or other clay, 4 lbs. of red earth or ochre or any other colored substance, and 2½ or 3 lbs. of flower of sulphur. The rubber (vulcanized or not) is triturated in a cold state between rollers and dissolved in thick tar oil, “ the mixture being made in “ a suitable kettle set on the fire.” The pulp is prepared by steeping rag paper in water for about 24 hours; it is then beaten in a trough, put into a cauldron containing water and as much potash, quicklime, or “ Portland or any other hydraulic cement” as will make “ a caustic lie to take off or destroy the size,” and boiled for at least an hour. The pulp is then taken out, squeezed, dried, and well pounded. “ The mixing is always performed “ between rollers, which are then heated inside by steam;” some of the solution is first poured between the rollers, then some pounded pulp, then more solution, and so on, until the whole is mixed together. The clay “ in a plastic or doughy state” is

next introduced between the rollers, together with the mixture already made, then the ochre, and lastly the sulphur. "This composition of five materials is run between the rollers a little time, then the rollers are tightly compressed together, and the scraper is applied to the roller which runs the fastest, in order to take off the mixture, which falls into a vessel placed to receive it. This mixture is pressed again between the rollers as often as may be necessary to the complete incorporation of its ingredients." If the cement is intended for "hydraulic or gas joints," no sulphur is needed, and pulp should be added in greater quantity. In the composition of a waterproof coating there is only dissolved Indian rubber and clay, in proportions varying with the use to be made of it;" in this state it can be employed for coating a variety of articles (enumerated in the Specification), among which are "all articles of saddlery." The application of the cement over "cloth which is to be penetrated and waterproofed being an operation requiring care and precautions," the patentee has invented "a process and machinery" whereby it can be performed more quickly and regularly than by hand:—the cloth wound round a roller descends into a cement pan (the contents being kept fluid by a steam pipe) in which are pressure rollers. A valve in the pan acts as a scraper to take off the superfluous cement as the cloth comes out on its passage to a hollow cast iron cylinder, where insulating cloths, steeped in an insulating liquid, "roll up betwixt the India-rubber coated cloth." Squeezing rollers, one above the other beneath the cylinder, keep the cloth regularly rolled on and spread over it. The different parts of the machinery and the arrangements thereof are fully described.

[Printed, 10d. Drawing.]

A.D. 1865, October 14.—N° 2658.

ELLIOTT, CHARLES ALFRED.—"An improvement in blinkers for horses and other animals." The blinker is formed of two thicknesses of leather and stitched in the usual way: in the middle of the flap a circular or other shaped aperture is made, and a piece of glass, talc, or other like transparent material, is set therein, secured either by a frame or between the two pieces of leather. Or the aperture may be left entirely open.

[Printed, 6d. Drawing.]

A.D. 1865, October 18.—N^o 2688.

JONES, THOMAS, and MASON, EDWARD KING.—“Improvements in saddles.” The object of this invention is to connect the stirrup leather to the spring bar without causing any projection at that part of the saddle. At the back of the spring bar (which is raised by a shoulder out of the plane of its plate) a depression is sunk in the saddle for the reception of the stirrup buckle: this buckle is “a single plain buckle,” having its sides slightly curved so as to give to its outer side a convex shape. The buckle is placed behind the spring bar with its convex side against the depression; and the free end of the stirrup leather is passed through a slot cut in the flap of the saddle.

[Printed, 8d. Drawing.]

A.D. 1865, October 20.—N^o 2704.

JOHNS, WILLIAM.—(*Provisional protection only.*)—“A new or ‘improved double-acting safety stirrup bar.’” The bar is constructed in the following manner:—“two bent finger or hook-like pieces (but differing in form)” are loosely pivoted on the ordinary metal plate which is secured to the saddle-tree. The lower piece, “which has an upward curved outer end,” opens when pressed against by the edge of the stirrup leather with sufficient strain; the inner end of this piece is bevelled so as to rest and act upon the bevelled part of the lower and shorter end of the upper piece, “and so to retain it and inclose and hold (as within a loop or flat link) the stirrup leather in its proper position.” The upper piece is raised upwards by the inner and horizontal end of the lower piece “when it is called into action for assisting the ‘escape of the stirrup leather horizontally;’” and, if the stirrup leather go over the saddle with the rider’s foot still remaining in the stirrup, it will come into contact with the longer end of the upper piece and open it. A dovetail lip may be formed along the bottom of the plate for supporting both pieces; and in addition thereto, or in substitution thereof, a steel spring, bent up at its point, may be placed along the bottom edge of the plate or stirrup bar. “The outer end of the upper and the upper end of the lower ‘moveable pieces may be notched, scarfed, or otherwise made ‘to take the one into the other.’”

[Printed, 4d. No Drawings.]

A.D. 1865, October 31.—N° 2802.

CASHIN, THOMAS FREDERICK, and ALLENDER, JOSEPH FELIX.—“Improvements in fasteners for driving bands, straps, “belts, harness, or other such like purposes.” This fastener “consists of a frame formed by a bottom plate with lugs or ears “at right angles thereto, and a roller with journals smaller in size “let into the lugs. The journals being smaller than the roller, “and flush at one point of the circumference, cause it to act as “an eccentric, and when the bottom plate of the frame is attached “to one end of the strap the roller is turned with the short radius “towards the plate, the other or unattached end of the strap is “then passed beneath it and the roller turned so that the throw “or long radius presses upon and secures it.” The plate and lugs are formed in one piece; the upper surface of the plate and the portion of the roller’s surface which acts upon the band or belt are serrated. The fastener is secured to one end of the band with a counter plate on the under side. For some purposes a roller or bar “to slide in inclined slots in the lugs, may be substituted for the eccentric roller.”

[Printed, 10d. Drawing.]

A.D. 1865, December 2.—N° 3096.

MORIN, EMILE, and SCHWEIZER, ROMAN.—(*Provisional protection only.*)—“A new or improved swivel snap,” composed of two arms joined by a hinge; the shorter ends “are of a semi-oval form, so that when closed an oval ring is formed for attachment to the ring of a collar or to a staple or hook;” the extremities of these semi-ovals are made, “the one with a projection “and the other with a recess, so that when closed the projection “enters the recess and strengthens the fastening:” the other ends of the arms are made of sufficient length “to exercise a compressing power or action upon the closed oval ring” by means of a spring fixed within or between the arms. Beyond the spring the arms are formed, “the one with a slot and the other with a central arm which passes through the slot, both parts being “bent inwards to an angle of about 45 degrees:” the arms terminate “in the form of two rings, one above the other, for a swivel spring hook or chain to be passed through.”

[Printed, 4d. No Drawings.]

A.D. 1865, December 5.—N° 3129.

HEADLY, EDWARD.—(*Provisional protection only.*)—“Improvements in the manufacture of tanks, baths, mangers, and other vessels.” These vessels are constructed “with a body of sheet or thin plate iron, or other sheet metal,” bent to the required shape: the sharp edge of either side is enclosed in an iron tube. Ends of cast-iron or other material are added, in which are grooves to receive the extremities of the metal body, being secured thereto and to the tube ends by screws and nuts. Screwed bolts are rivetted “near the lower part of the sheet-iron body;” they pass through the iron ends, “which are forced and held up by suitable nuts.” Feet, or means of fixing, or handles, may be supplied to the ends.

[Printed, 4d. No Drawings.]

A.D. 1865, December 14.—N° 3237.

MASSON, JACQUES.—“An improved apparatus for apportioning the fodder of horses, cattle, and other domestic animals.” The apparatus, which is contained in a case of wood or iron, or a combination of both strengthened by braces, consists of measures varying in size, upper and lower registers self-acting and sliding in grooves, handles or knobs fixed on the lower registers, springs acting on the lower registers and keeping them closed and the upper ones open, and jointed levers acted upon by the springs and regulating the movement of the registers; there are supports for the levers, and mortises at the lower part of the registers in which the ends of the levers are fixed. The action of the mechanism is “somewhat similar to that of the shot flask.” The lower parts of the measures may be furnished with self-acting valves in place of registers; and outside the case may be placed an indicator to show how much grain has been measured. The indicator is set in motion by a spring “having a rectilinear and alternative movement,” and worked by a lever “acted upon by those working the upper valves.”

[Printed, 10d. Drawing.]

A.D. 1865, December 23.—N° 3325.

NEWTON, WILLIAM EDWARD.—(*A communication from Henry Wurtz.*)—“Improvements in the preparation of glue or gelatine so as to render it insoluble in water, and applicable by the admixture of other substances to various purposes for which

“ common glue or gelatine cannot now be used.” This invention “ relates to a mode of treating or acting chemically on common glue or gelatine, so that without being deprived of its gelatinizing power it will become in the process of drying converted into a substance which is insoluble in water, so that by the addition of various ingredients it may be converted into a substance similar to bone or ivory.” This change is effected “ by heating the glue or gelatine in the form of a strong solution in water together with a strong solution of chromic acid, or of an alkaline bichromate (bichromate of potash, for instance).” Before the bichromate is added, “ the characters of the final product may be greatly and variously modified” by the admixture of various substances. “ Weight may be given by admixing heavy substances in powder. Hardness may be increased by adding sand, clay, emery, pounded glass, red oxide of iron (jeweller’s ‘rouge’), or tripoli; and to increase its strength and toughness chopped fibre may be added, either “ vegetable, animal, or mineral.” It may be prevented when in the form of very thin sheets from becoming brittle by rubbing it with glycerine: different coloring matters also may be added. Sometimes it is necessary to grind the materials together, the grinding surfaces being kept sufficiently heated “ to prevent the gelatinization of the liquid.” When powders of a greasy or resinous nature are used, they may be “ slightly moistened with diluted alcohol.” Compounds may be formed “ by introducing some resinous and oily substances into intimate combinations with the modified gelatine in the form of alcoholic solutions.” The patentee details the various uses to which the new material is adaptable; “ nearly every use to which the hard vulcanized rubber compounds, horn, ivory, bone, shell, papier maché, have been applied”—amongst them to coating whip stocks—as well as his mode of operation.

[Printed, 6d. No Drawings.]

A.D. 1865, December 23.—N° 3334.

HURN, GEORGE, and HURN, DANIEL:—“ Improvements in obtaining and employing continuous lengths of tanned leather for various useful purposes.” The prepared skin or hide is pared or rounded off at the edges or corners, and “ continuous lengths are cut therefrom by causing the knife or instrument to

“traverse the entire surface of the skin, so to divide it in an “endless piece or coil, which is subsequently submitted to a “longitudinal stretching, damping, greasing, or hammering as “may be found necessary for straightening or removing the “angles and curves formed by the cutting.” The lengths, which vary “from one hundred to two thousand feet or more,” are when required, passed through dies for rounding or otherwise forming them into strips, threads, or bands. The lengths may be employed for “weaving, plaiting, twisting, braiding, or manu-“facturing into ropes or otherwise, either plain or in combination “with hemp and flax, cotton, silk, wool, or hair of all kinds, and “painted, stained, dyed, varnished, and colored as may be found “necessary, or otherwise ornamented or waterproofed.” Among the many uses (the names of which fill nearly a page in the Specification), to which the lengths may be applied, are army picket, artillery, and other traces, bridles and reins round or flat (in lengths without joining), harness, whips, halters, headstalls nosebags, and horse and dog collars.

[Printed, 8d. Drawing.]

1866.

A.D. 1866, January 10.—N° 79.

TURNER, CHARLES.—(*Provisional protection refused.*)—“Im-“provements in apparatus for brushing the hair of man and “animals.” This invention “consists in the application of a “balance lever carrying at one extremity grooved pulleys, over “which the endless band for driving the brush passes; it also “passes over pulleys on the centre shaft or fulcrum, on which the “lever turns.” The band driving the brush “also passes over “a pulley mounted on a fixed fulcrum, towards and from which “the pulley on the lever oscillates according to the tension on “the driving band.” To apply the apparatus to the grooming of animals the driving band is passed “over two additional grooved “guide pulleys disposed below the lever so as to keep the strap “away from the animal while it is being brushed underneath. “An arrangement is also made for shifting the whole apparatus “along so as to reach either end of the animal without moving

“ it ;” it is moreover provided with a long handle, “ so that it “ may be held and applied in an overhanging position.” The brush and axis when not in use rest on a pair of hooks “ pendant “ from the balance lever fulcrum.”

[Printed, 4d. No Drawings.]

A.D. 1866, February 27.—N^o 605.

COLE, MAURICE.—(*Provisional protection only.*)—“ Improvements in the construction of street cabs and harness for the same.” The chief object of this invention “ is to facilitate the carriage traffic in the streets of large and crowded cities.” The cab with the horse harnessed thereto “ will occupy little if any more street room than an ordinary cab without horse or shafts”; it is built “ after the pattern of the hansom so far as the outline is concerned,” but it is divided longitudinally or made double-bodied, “ so as to leave a free space under the roof of the cab to receive the horse: the seats will thus be on either side instead of as heretofore behind the horse.” The axle “ is cranked at its ends which are fitted with wheels of the ordinary diameter; it is also bent at its middle so as to form an arch over the back of the horse.” The cab is provided “ both at back and front with shoes a few inches from the ground, the former to prevent the horse from rearing and throwing the cab backwards, and the latter to prevent the horse from falling.” This arrangement “ protects the body of the horse from the weather, but leaves his head and legs free for action.” “ In order to harness the horse to this cab, which has no shafts, the arch of the axle is fitted with a vertical screw pin, which passes through the axle and enters a tapped hole in a plate rivetted to the iron tree of the ordinary pad. Projecting from the upper part of the axle is a steel arm, which is secured by a removeable cross pin to the head of the hames. Short draught traces attached to the hames are secured to the axle, and breech traces are also secured in like manner.” The reins “ lead under the roof to the driver at the back of the cab.”

[Printed, 4d. No Drawings.]

A.D. 1866, March 1.—N^o 620.

HENTON, SAMUEL, and HENTON, CHARLES JOHN.—(*Provisional protection only.*)—“ Improvements in rotary brushes and

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“ apparatus for brushing, currying, or dressing the skin or hair of “ animals or hides.” This brush or currycomb or combination of the two is made as follows: the cylinder or endless band of the brush is furnished “ with a series of hard or soft bristles or hairs “ and bars or combs of metal or hard substance combined in alter-“ nate lines either parallel with or set at an angle to the axis of “ rotation, and arranged in proportions suitable to the nature of “ the skin, hair, or hide to be operated upon.”

[Printed, 4d. No Drawings.]

A.D. 1866, March 10.—N° 735.

GEDGE, WILLIAM EDWARD.—(*A communication from Lorenzo Salvy.*)—(*Provisional protection only.*)—“ An improved manufac-“ ture of studs, buttons, ornamental plates, and analogous articles “ used in saddlery and harness upholstery, military equipments, “ clothing, and for other purposes, making them either of rolled, “ cast, or wrought metal, or of any hard material such as horn, “ ivory, gutta percha, wood, or hardened india-rubber, and with “ two or several shanks or metal fastening rings or prongs.” The stud is composed of two plates and a double shank made of a bent wire: the lower plate has in it two holes through which the prongs of the shank are passed: the two plates are then “ submitted to a “ strong pressure which attaches them together, at the same time “ giving to the cap any desired impression as well as the shape “ and size required.” To fix this stud on a piece of saddlery the prongs cross each other and “ form (being afterwards flattened) a “ sort of knot which will resist any traction to which the stud “ may be submitted.” The same process is employed in the manufacture of studs with several shanks; and “ this method is “ also applicable for the fitting of ring shanks or fastenings on “ to metal buttons or buttons made of any hard material to be “ used on clothing, with this difference that the two ends of the “ fastening or ring are crossed and flattened between the lower “ plate and the cap of the button.”

[Printed, 6d. Drawing.]

A.D. 1866, April 5.—N° 972.

RUMBELOW, GEORGE.—“ Improvements in troughs for feeding “ pigs and other animals.” The lower part of the trough is divided into several separate feeding places by radial partitions,

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and above it is formed or fixed a frame whose radial plates correspond with the partitions. In the centre is a cone rising above the rim of the trough and enclosed in a cylinder with a moveable cover. The feeding places, the edges of which are rounded, are constructed round a circle by preference, but not necessarily so. In some cases "the division or partition across the centre is raised " in such manner as to divide the apparatus into two parts, in the " feeding places of one half the food may be introduced," and water may be put into the other.

[Printed, 10d. Drawing.]

A.D. 1866, May 2.—N° 1249.

NURSE, CEDRIC.—(*Provisional protection only.*)—" Improvements in the manufacture of harness and saddlery." This invention consists in substituting studs for buckles, and is applicable to all parts of harness and saddlery. The stud is riveted to a metal plate which is to be stitched or otherwise fastened between the folds of the leather "at the positions hitherto occupied by buckles." The corresponding end of the band or strap has a series of holes punched therein, and "it is only necessary to pass the perforated strap under a loop attached in the solid at the end of the hidden plate, and then to pass the strap upon the projection in such position that when one of the holes comes over the stud or projection the strap shall be pressed down flush;" the extremity of the strap is passed under one or more loops, and the fastening is complete.

[Printed, 4d. No Drawings.]

A.D. 1866, July 2.—N° 1762.

COOK, THOMAS.—(*Provisional protection only.*)—" Improved machinery for uniting together materials employed in the manufacture of boots and shoes, saddlery, driving bands, and such like articles as require to be strongly united together," by the aid of which a long piece of wire is forced "into and through the entire thickness of the materials which are to be united together." The machinery is of the following construction: at the upper part of an upright framing a short axle is mounted, "upon one end of which a cam is fixed, and upon the other end a small fly wheel, to which is connected a rod extending downwards, and connected to treddles to be worked by the feet of the

“operator.” In connection with the cam is “a bell crank lever, “ the lower end of which is formed with a wedge-shaped foot for “ operating upon a pair of cutting shears.” The mechanism for gripping the wire and forcing it into the materials “consists of a “ pair of hinged sliding nippers operated upon by a wedge “ attached to the horizontal arm of the bell crank lever:” the piece of metal upon which the nippers slide “is connected by a “ rod to a slot in a bent lever,” the lower end of which is mounted on a stud fixed to the framing. The upper end of “a bent piece “ of metal somewhat similar to the letter L” supports the materials; and the horizontal part of this piece “is formed with a “ vertical axis working in a suitable bearing, and capable of being “ raised and lowered.”

[Printed, 4d. No Drawings.]

A.D. 1866, July 11.—N^o 1818.

DÉGRAVEL, FRANÇOIS.—(*Provisional protection only.*)—“An improved spring suspension for horses’ nosebags.” On each side of a nosebag of ordinary construction is placed a helical spring enclosed in two tubes, which are “free to slide within certain limits one within the other.” The ends of each spring carry a ring: the rings being united by a strap or cord prevent the springs from leaving the tubes. The bag is sometimes made with an aperture which is covered with canvas or perforated metal for the purpose of sifting the food and enabling the animal to breathe freely. As the weight in the bag decreases, the springs contract, and the food is thereby always kept at the same distance from the mouth.

[Printed, 4d. No Drawings.]

A.D. 1866, July 14.—N^o 1847.

DAY, GEORGE.—(*Provisional protection only.*)—“An improved apparatus or stopping for curbing horses when they run away “or become unmanageable.” The apparatus is a strap or a round rein buckled or otherwise fastened, “say, on the near side of the head strap of an ordinary bridle, and made to pass round “underneath the horse’s throat to the opposite or off side, where “it goes through a ring or small pulley and passes down to the “curb, where it runs through a similar ring or small pulley to the

" person driving." By pulling this rein the horse is curbed " by
" stopping his wind."

[Printed, 4d. No Drawings.]

A.D. 1866, July 18.—N° 1873.

GEDGE, WILLIAM EDWARD.—(*A communication from Elie Larivière.*)—(*Provisional protection only.*)—" An improved method of instantly releasing or unharnessing one or more horses from carriages of every description." The movement " is placed in the axle of the vehicle, the pole pin modified and made hollow serving for basis of the system in four-wheeled carriages, and an equivalent piece being fitted with the same object in the longitudinal axle of two-wheeled vehicles." The mechanism consists of an iron trace bar with a hook at each end; the bar is moveable, turning in a bearing fixed on the draw bar. In the middle of the trace bar and perpendicular to it " is fixed a hinged rod in three pieces lengthwise, so as to act as a lever on the trace bar, in order to give it a rotary movement on itself, which uplifts the hooks inwards for the withdrawal of the traces;" the rod is held beneath the carriage framing by a vertical shaft turning in the pole pin or the equivalent piece. " At the end of this rod is a plate pierced with an opening through which passes a hook fixed at the bottom of the revolving shaft;" the turning of this shaft causes the hook to slide under the solid part of the plate and hold it until the driver " gives another rotary motion so as to bring the hook into the opening in the plate," which escapes from the shaft and is pushed back by a spiral spring " which the plate closes in attaching itself to the shaft." The ends of the traces are furnished with a friction roller which hooks on to the trace bar. The backing apparatus is fastened to a moveable catch on a fixed plate: the catch is held by a spring " sufficient to hold of itself, but which comes off easily directly the horse leaves the shafts. A small strap attached to the driver's box facilitates this movement by causing this spring " catch to come off." The releasing handle is placed in any convenient part of the carriage.

[Printed, 4d. No Drawings.]

A.D. 1866, July 26.—N° 1942.

TOMS, WILLIAM—(*Provisional protection only.*)—" An improved rein clip or holder" suitable for being applied to the dash board

or other part of a vehicle or to a saddle. The holding parts “ are formed with concave and convex surfaces pressed firmly together by means of a metal or other spring ; ” they are covered or lined with india-rubber, leather, or other suitable substance ; and the patentee prefers “ that the free end of the spring should “ be of concave form to press upon a fixed convex surface ” screwed or otherwise fastened to the dash board. A small lever may be combined with the clip to facilitate the opening of the parts.

[Printed, 4d. No Drawings.]

A.D. 1866, August 9.—N° 2055.

CLAY, JOHN.—“ Improvements in saddles,” or rather in saddle-trees ; and the invention consists in constructing the foundation of metal, and hollow or tubular : the metal preferred is iron cast or wrought ; but brass or other hard metal or alloy may be used. The foundation is made in two (or more) pieces or shells, one having the figure of the upper side, the other of the under side—the ordinary processes for shaping metals are employed—the shells are joined at their edges by soldering, brazing, rivetting, or by turning the edge of one shell over the edge of the other. The patentee finds it more convenient to make “ the fore part or “ shoulder ” separately and attach it to the other parts. The foundation is coated partly or entirely with papier maché or parkesine, or other material which will afford the required hold for the nails used in securing the webs and leather : the coating however is not absolutely necessary, as the webs and leather may be rivetted or screwed on, or fastened by means of holes drilled for that purpose in the tree.

[Printed, 4d. No Drawings.]

A.D. 1866, August 20.—N° 2130.

HENDERSON, THOMAS.—(*Provisional protection only.*)—“ Improvements in the material used for beds of horses and other animals.” The material, which the patentee proposes to employ “ in the shape of an elastic mat or stable mattress,” consists of linoleum, kamptulicon, india-rubber, cork, or other elastic substance, to be laid down of sufficient thickness to supersede the use of straw.

[Printed, 4d. No Drawings.]

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A.D. 1866, September 3.—N^o 2262.

BONNEVILLE, HENRY ADRIEN.—(*A communication from Annet Amable Fure.*)—(*Provisional protection only.*)—"Improvements in apparatus to feed horses." By aid of this invention the mouth of the horse is kept constantly near the provender in the nose bag. "Within both of the cockades on each side of the horse's head, or any other part of the harness on the horse's head," is placed a pulley actuated by a spiral spring: on the pulley "is wound a cord, the free end of which is tied to one of the two cords that belong to the nose bag."

[Printed, &c. No Drawings.]

A.D. 1866, September 10.—N^o 2322.

GIRDGE, WILLIAM EDWARD.—(*A communication from Lorenzo Soley.*)—(*Provisional protection only.*)—"An improved manufacture of studs, buttons, ornamental plates, and analogous articles used in saddlery, upholstery, military equipments, clothing, and for other purposes, making them either of rolled cast, or wrought metal, or of any hard material, such as horn, ivory, gutta percha, wood, or hardened india-rubber, and with two or several shanks or metal fastenings, rings or prongs." The lower metal plate of a stud is pierced with two holes to receive the prongs of a metal bent fork; both plate and fork are fitted into a cap and submitted to a strong pressure which unites them and at the same time gives to the cap the required impression, size, and shape: the fork may be of round, angular, or flat wire, or of bands more or less wide. To fix this stud on a piece of saddlery the prongs "cross each other and form (being afterwards flattened) a sort of knot." The same process is applicable to the manufacture of studs with any number of prongs, and to the fitting of rings, &c. on to buttons, with this difference, "that the two ends of the fastening or ring are crossed and flattened between the lower plate and the cap of the button."

[Printed, &c. No Drawings.]

A.D. 1866, September 15.—N^o 2371.

KBYSTON, JOHN.—(*Provisional protection only.*)—"An improved material or substance to be used instead of whalebone in the manufacture of whips, whip handles, riding and walking

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“ sticks, and such like articles.” The surface of a hardened steel rod is dressed with a solution composed chiefly of pitch or like material ; it is then coated with sheets of ebonite ; the first sheet is wound round spirally ; another is added, and so on until the requisite thickness is obtained ; the sheets are made to adhere by a preparation of naphtha. “ The half-formed whip or stick ” is now placed in a mould, and pressure is applied ; it is afterwards wrapped up tightly in a wet cloth and put into a trough of sand and brickdust, and hardened by being submitted to a great heat (say 350°). It is then taken out of the cloth, polished, and mounted in the usual manner.

[Printed, 4d. No Drawings.]

A.D. 1866, September 21.—N° 2429.

CHALLINOR, THOMAS.—(*Provisional protection only.*)—“ Improvements in machinery or apparatus for cleaning and “ polishing boots and shoes, harness, and other manufactured “ leather goods.” The patentee employs a series of circular or endless brushes, “ mounted upon a revolving spindle or shaft “ driven by a foot lever and crank or by other convenient means,” and operating continuously in one direction upon the surface of the article to be cleaned or polished. The liquid or paste is contained in a reservoir, and is applied to one of the series by means of a feeding brush, “ which is carried by parallel levers, and is “ capable of being depressed so as to take up the requisite “ quantity of blacking, and of being then elevated by spiral or “ other springs.” When charged, it is brought into contact with the surface of the blacking brush “ by turning over partly the “ parallel levers, which on being released return to their original “ position again, the feeding brush being thereby carried out of “ the way of the other brushes.” The article is submitted first to the action of the cleaning brush, then to that of the blacking brush, and finally to that of the polisher. Other brushes or rubbers may be added to the apparatus if desired.

[Printed, 4d. No Drawings.]

A.D. 1866, October 30.—N° 2796.

ADIE, PATRICK.—“ Improvements in means and machinery for “ clipping horses and other animals.” The body of the machine is made generally of steel, the outer end, either straight or curved,

“ being cut into teeth pointed like a comb in the parallel portions “ and being worked into tapered cutting teeth behind these “ points.” The cutting edges are next to a steel plate having teeth similar to and facing the others. This plate is pressed against the body by two screws which pass through slots in the plate and are screwed to the body. The comb part of the teeth projects all its length beyond the teeth of the plate. A bent lever is fixed to the body ; the short end works in a slot in the plate ; and by moving the handles to and from each other a lateral motion is given to both body and plate, and the cutters (which cut both ways) clip all that comes between them. An extra comb, if desired, can be fixed underneath the body. In a modification the lateral motion is caused by the lever handle turning an axle which has an eccentric upon it ; the eccentric moves the plate by means of a connecting rod, the plate being slotted to allow the lateral motion. In this arrangement bevel gear and pulleys are added to turn a circular brush placed in front of the comb. In sheep shears a comb is fixed underneath or made in a piece with one of the shear points ; it projects a short distance in front of the cutting point.

[Printed, 8d. Drawing.]

A.D. 1866, November 28.—Nº 3132.

LANGSFORD, HENRY.—(*Provisional protection only.*)—“ An “ improved harness saddle and tugs.” This invention consists in forming saddletrees with a fixed metal back band into which tug eyes are screwed, provision being made for adjusting the position of the eyes higher or lower by two or more holes in the band. Loose back bands are thus dispensed with, and the saddles and trees may be varied in shape as required.

[Printed, 4d. No Drawings.]

A.D. 1866, December 8.—Nº 3239.

SOUTHALL, HENRY.—(*Provisional protection only.*)—“ Im-“ provements in buckles,” thereby facilitating the separation of the strap from the tongue in case of emergency, and when it is not possible or convenient to part them by raising the tongue. The frame and the bar are made of separate pieces ; on the sides of the frame are knuckles drilled with holes in one of which is formed a screw thread. On one end of the bar is a screw and at

the other a ring-like band : the bar is passed through the knuckle hole and the eye of the tongue and screwed into the thread. It is passed also through two small tubular rollers, one on each side of the fixed strap ; these rollers are provided with metal flaps which are inserted between and sewn into the folded part of the strap ; they protect the leather from wear. By unscrewing the bar the straps are instantly separated.

[Printed, 4d. No Drawings.]

A.D. 1866, December 15.—N° 3306.

SYMM, JOSEPH.—(*Provisional protection only.*)—“ Improvements in sheep and cattle racks.” A divider is constructed or formed “ between two troughs which respectively extend the length “ of the two sides of a sheep rack, or between two rows of troughs “ in a sheep rack : ” above the divider is a “ chamber which “ extends lengthwise of the rack, and the central vertical line of “ which is immediately above the centre or point of the divider.” The divider is by preference formed of the backs of the troughs, the backs being inclined so as to meet each other at the top. “ The chamber is filled with corn through lids in the cover of the “ rack,” and the divider causes an equal portion to fall into each trough, at the same time preventing an overflow : “ the chamber “ may be divided vertically.” The invention “ further consists “ in carrying up from the lower part of the corn chamber on each “ side to or near to the outer edge of the cover of the rack, wire “ racks, which constitute with the sides of the corn chamber com “ partments for holding hay or other like food. These compa “ ments are also supplied through lids in the cover.” The rack may be mounted on wheels, and will answer for cattle, if the wheels be of larger diameter. To adapt the same racks for either sheep or cattle the wheels are made eccentric, “ so that when “ axles are in their lowest position the racks are at a suitable “ height for sheep,” and when in their highest, for cattle.

[Printed, 4d. No Drawings.]

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“ sticks, and such like articles.” The surface of a hardened steel rod is dressed with a solution composed chiefly of pitch or like material ; it is then coated with sheets of ebonite ; the first sheet is wound round spirally ; another is added, and so on until the requisite thickness is obtained ; the sheets are made to adhere by a preparation of naphtha. “ The half-formed whip or stick ” is now placed in a mould, and pressure is applied ; it is afterwards wrapped up tightly in a wet cloth and put into a trough of sand and brickdust, and hardened by being submitted to a great heat (say 350°). It is then taken out of the cloth, polished, and mounted in the usual manner.

[Printed, 4d. No Drawings.]

A.D. 1866, September 21.—Nº 2429.

CHALLINOR, THOMAS.—(*Provisional protection only.*)—“ Improvements in machinery or apparatus for cleaning and polishing boots and shoes, harness, and other manufactured leather goods.” The patentee employs a series of circular or endless brushes, “ mounted upon a revolving spindle or shaft “ driven by a foot lever and crank or by other convenient means,” and operating continuously in one direction upon the surface of the article to be cleaned or polished. The liquid or paste is contained in a reservoir, and is applied to one of the series by means of a feeding brush, “ which is carried by parallel levers, and is “ capable of being depressed so as to take up the requisite “ quantity of blacking, and of being then elevated by spiral or “ other springs.” When charged, it is brought into contact with the surface of the blacking brush “ by turning over partly the “ parallel levers, which on being released return to their original “ position again, the feeding brush being thereby carried out of “ the way of the other brushes.” The article is submitted first to the action of the cleaning brush, then to that of the blacking brush, and finally to that of the polisher. Other brushes or rubbers may be added to the apparatus if desired.

[Printed, 4d. No Drawings.]

A.D. 1866, October 30.—Nº 2796.

ADIE, PATRICK.—“ Improvements in means and machinery for “ clipping horses and other animals.” The body of the machine is made generally of steel, the outer end, either straight or curved,

“ being cut into teeth pointed like a comb in the parallel portions “ and being worked into tapered cutting teeth behind these “ points.” The cutting edges are next to a steel plate having teeth similar to and facing the others. This plate is pressed against the body by two screws which pass through slots in the plate and are screwed to the body. The comb part of the teeth projects all its length beyond the teeth of the plate. A bent lever is fixed to the body ; the short end works in a slot in the plate ; and by moving the handles to and from each other a lateral motion is given to both body and plate, and the cutters (which cut both ways) clip all that comes between them. An extra comb, if desired, can be fixed underneath the body. In a modification the lateral motion is caused by the lever handle turning an axle which has an eccentric upon it ; the eccentric moves the plate by means of a connecting rod, the plate being slotted to allow the lateral motion. In this arrangement bevel gear and pulleys are added to turn a circular brush placed in front of the comb. In sheep shears a comb is fixed underneath or made in a piece with one of the shear points ; it projects a short distance in front of the cutting point.

[Printed, &c. Drawing.]

A.D. 1866, November 28.—Nº 3132.

LANGSFORD, HENRY.—(*Provisional protection only.*)—“ An “ improved harness saddle and tugs.” This invention consists in forming saddletrees with a fixed metal back band into which tug eyes are screwed, provision being made for adjusting the position of the eyes higher or lower by two or more holes in the band. Loose back bands are thus dispensed with, and the saddles and trees may be varied in shape as required.

[Printed, &c. No Drawings.]

A.D. 1866, December 8.—Nº 3239.

SOUTHALL, HENRY.—(*Provisional protection only.*)—“ Im-“ provements in buckles,” thereby facilitating the separation of the strap from the tongue in case of emergency, and when it is not possible or convenient to part them by raising the tongue. The frame and the bar are made of separate pieces ; on the sides of the frame are knuckles drilled with holes in one of which is formed a screw thread. On one end of the bar is a screw and at

the other a ring-like band : the bar is passed through the knuckle hole and the eye of the tongue and screwed into the thread. It is passed also through two small tubular rollers, one on each side of the fixed strap ; these rollers are provided with metal flaps which are inserted between and sewn into the folded part of the strap ; they protect the leather from wear. By unscrewing the bar the straps are instantly separated.

[Printed, 4d. No Drawings.]

A.D. 1866, December 15.—N° 3306.

SYMM, JOSEPH.—(*Provisional protection only.*)—“ Improvements in sheep and cattle racks.” A divider is constructed or formed “ between two troughs which respectively extend the length “ of the two sides of a sheep rack, or between two rows of troughs “ in a sheep rack : ” above the divider is a “ chamber which “ extends lengthwise of the rack, and the central vertical line of “ which is immediately above the centre or point of the divider.” The divider is by preference formed of the backs of the troughs, the backs being inclined so as to meet each other at the top. “ The chamber is filled with corn through lids in the cover of the “ rack,” and the divider causes an equal portion to fall into each trough, at the same time preventing an overflow : “ the chamber “ may be divided vertically.” The invention “ further consists “ in carrying up from the lower part of the corn chamber on each “ side to or near to the outer edge of the cover of the rack, wire “ racks, which constitute with the sides of the corn chamber com-“ partments for holding hay or other like food. These compart-“ ments are also supplied through lids in the cover.” The racks may be mounted on wheels, and will answer for cattle, if the wheels be of larger diameter. To adapt the same racks for either sheep or cattle the wheels are made eccentric, “ so that when the “ axles are in their lowest position the racks are at a suitable “ height for sheep,” and when in their highest, for cattle.

[Printed, 4d. No Drawings.]

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